



# CERTIFICATE

**Issued Date: Sep. 15, 2008  
Report No.: 088213R-ITCEP07V04**

This is to certify that the following designated product

**Product : Notebook  
Trade Name : MSI  
Model Number : MS-1674, EX620  
Company Name : MICRO-STAR INT'L Co., LTD.**

This product, which has been issued the test report listed as above in QuieTek Laboratory, is based on a single evaluation of one sample and confirmed to comply with the requirements of the following EMC standard.

**EN 55022: 2006**

**EN 55024: 1998+A1: 2001+A2: 2003**

**EN 61000-3-2:2006**

**IEC 61000-4-2 Edition 1.2: 2001-04**

**EN 61000-3-3:1995+A1: 2001+A2: 2005**

**IEC 61000-4-3 Edition 3.0: 2006**

**IEC 61000-4-4: 2004**

**IEC 61000-4-5 Edition 2.0: 2005**

**IEC 61000-4-6 Edition 2.2: 2006**

**IEC 61000-4-8 Edition 1.1: 2001-03**

**IEC 61000-4-11 Second Edition: 2004-03**

TEST LABORATORY

Vincent Lin / Manager



## Test Report

Product Name : Notebook

Model No. : MS-1674, EX620

Applicant : MICRO-STAR INT'L Co., LTD.

Address : No. 69, Li-De St., Jung-He City, Taipei Hsien, Taiwan, R.O.C.

Date of Receipt : 2008/08/12

Issued Date : 2008/09/15

Report No. : 088213R-ITCEP07V04

Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF, NVLAP or any agency of the Government.  
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

# CE Declaration of Conformity

The following product is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (2004/108/EC). The listed standards as below were applied:

The following Equipment:

Product : Notebook  
Model Number : MS-1674, EX620  
Trade Name : MSI

This product is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (2004/108/EC). For the evaluation regarding EMC, the following standards were applied:

#### RFI Emission:

EN 55022: 2006 Class B : Product family standard  
EN 61000-3-2:2006 Class D : Limits for harmonic current emission  
EN 61000-3-3:1995+A1: 2001+A2: 2005 : Limitation of voltage fluctuation and flicker in low-voltage supply system

#### Immunity:

EN 55024:1998+A1: 2001+A2: 2003 : Product family standard

The following importer/manufacturer is responsible for this declaration:

Company Name : \_\_\_\_\_  
Company Address : \_\_\_\_\_  
Telephone : \_\_\_\_\_ Facsimile : \_\_\_\_\_

Person is responsible for marking this declaration:

\_\_\_\_\_  
Name (Full Name)

\_\_\_\_\_  
Position/ Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Legal Signature



Corporation  
**Quietek**

QTK No.: 088213R-ITCEP07V04



## Statement of Conformity

This certifies that the following designated product:

Product : Notebook

Model Number : MS-1674, EX620

Trade Name : MSI

Company Name : MICRO-STAR INT'L Co., LTD.

This product is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (2004/108/EC). For the evaluation regarding EMC, the following standards were applied:

### RFI Emission:

EN 55022: 2006 Class B : Product family standard

EN 61000-3-2:2006 Class D : Limits for harmonic current emission

EN 61000-3-3:1995+A1: 2001+A2: 2005 : Limitation of voltage fluctuation and flicker in low-voltage supply system

### Immunity:

EN 55024:1998+A1: 2001+A2: 2003 : Product family standard



NVLAP  
NVLAP Lab Code: 200533-0

NEMKO



TAF  
Testing Laboratory  
0914

TEST LABORATORY

Vincent Lin / Manager

The verification is based on a single evaluation of one sample of above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab. Logo.

## Test Report Certification

Issued Date : 2008/08/27  
Report No. : 088213R-ITCEP07V04



Product Name : Notebook  
Applicant : MICRO-STAR INT'L Co., LTD.  
Address : No. 69, Li-De St., Jung-He City, Taipei Hsien, Taiwan, R.O.C.  
Manufacturer : MICRO-STAR INT'L Co., LTD.  
Model No. : MS-1674, EX620  
Rated Voltage : AC 230 V / 50 Hz  
EUT Voltage : AC 100-240V, 50/60Hz  
Trade Name : MSI  
Applicable Standard : EN 55022: 2006 Class B  
EN 55024: 1998+A1: 2001+A2: 2003  
EN 61000-3-2:2006  
EN 61000-3-3:1995+A1: 2001+A2: 2005  
Test Result : Complied  
Performed Location : Quietek Corporation (Linkou Laboratory)  
No.5-22,Ruei-Shu Valley, Ruei-Ping Tsuen Lin Kuo Shiang,  
Taipei, 244 Taiwan, R.O.C.  
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(Manager / Vincent Lin )

## Laboratory Information

We , **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scopes:

Taiwan R.O.C.	:	BSMI, NCC, TAF
Germany	:	TUV Rheinland
Norway	:	Nemko, DNV
USA	:	FCC, NVLAP
Japan	:	VCCI

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site :<http://tw.quietek.com/modules/enterprise/services.php?item=100>  
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site :  
<http://www.quietek.com/>

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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## 1. General Information

### 1.1. EUT Description

Product Name	Notebook
Trade Name	MSI
Model No.	MS-1674, EX620

Component	
Power Cord	Non-Shielded, 1.8m
Power Adapter (1)	MFR: LI SHIN, M/N: LSE0202C1990 Input: AC 100-240V, 50/60Hz 1.5A Output: DC 19V, 4.74A Cable out: Non-Shielded, 1.8m, with one ferrite core bonded.
Power Adapter (2)	MFR: DELTA, M/N: ADP-90SB BB Input: AC 100-240V, 50-60Hz 1.5A Output: DC 19V, 4.74A Cable out: Non-Shielded, 1.8m, with one ferrite core bonded.

Keyparts List		
ITEM	Vendor	M/N
CPU	INTEL	P8400/2.26G
		QZNM/2.4G
		T9400/2.53
LCD	CMO	N156B3-L02 (15.6")
		N156B3-L01 (15.6")
	Samsung	LTN160AT01-A01 (16")
HDD	Fujitsu	MHY2160BH
		MHY2200BH
		MHY2250BH
		MHZ2320BH
	Toshiba	MK1646GSX
		MK2546GSX
		MK3252GSX
	Hitachi	HTS541616J9SA00
		WD1200BEVS
	WD	WD1600BEVS
		WD2500BEVS
		WD3200BEVT
ODD	SONY	BC-5500S-01
		AD-7560S
	HLDS	GSA-T50N
		GCC-T20N
	PLDS	DS-8A2S
RAM	TSST	TS-L633A
	Transcend	TS128MSQ64V6J
	Transcend	TS128MSQ64V6J
	Kingston	KVR667D2S5
	Transcend	TS128MSQ64V6J
	Transcend	JM488Q643A-6
	UNIFOSA	GU331G0AJEPN6E20
	A-DATA	ADOPE1A16332
	Transcend	TS256MSQ64V6U
	Kingston	KVR667D2S5
	Transcend	TS256MSQ64V6N
	Transcend	TS256MSQ64V6U
	UNIFOSA	GU332G0ALEPR8H2F
	Transcend	TS256MSQ64V8U
	SAMSUNG	M470T5663QZ3-CF7
	Transcend	TS256MSQ64V8U
	Transcend	JM800QSU-2G
MODEM	LSI	D40
WLAN	INTEL	512AN_HMW
		533AN_HMW
	MSI	MS-6890
	Atheros	AR5B91
BT	MSI	MS-6837D
Webcam	CHICONY	CNF7231
TV-tuner	Kworld	MC-810

Adapter	LI SHIN	LSE0202C1990
	DELTA	ADP-90SB BB
Inverter	Sumida	IN1408/T-LF
	SAMPO	YIVNMS0018D11-B
Battery	Celxpert	CBPIL72
	SMP	SQU-718
Keyboard	Chicony	MP-03233U4-359A
MXM	ATI	M82ME-XT O2

**Note:**

The EUT is including two models, The MS-1674 for MSI and the EX620 PRO for different marketing requirement.

## 1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Pre-Test Mode	
Mode 1	
Mode 2	
Mode 3	
Mode 4	
Mode 5	
Mode 6	
Mode 7	
Mode 8	
Mode 9	
Mode 10	
Mode 11	
Mode 12	
Mode 13	
Mode 14	
Mode 15	
Mode 16	
Final Test Mode	
Emission	Mode 1 Mode 2
Immunity	Mode 1 Mode 2

ITEM	MODE1	MODE2
CPU	INTEL T9400 / 2.53GHz	INTEL QZN M / 2.4GHz
Display/Resolution	LCD+CRT/1366*768/60Hz	LCD+HDMI/1366*768/60Hz
Panel	CMO / N156B3-L02	CMO / N156B3-L01
H.D.D	Fujitsu / MHY2160BH	Fujitsu / MHY2200BH
O.D.D.	SONY / BC-5500S-01	SONY / AD-7560S
Wireless LAN Card	INTEL / 512AN_HMW	INTEL/ 533AN_HMW
Modem Module	LSI / D40	LSI / D40
Memory	Transcend (Samsung E-die) TS128MSQ64V6J	Transcend (Hynix) TS128MSQ64V6J
Web Camera	CHICONY / CNF7231	CHICONY/CNF7231
AC Adapter	LI SHIN/LSE0202C1990	DELTA / ADP-90SB BB
Inverter	SUMIDA / IN1408/T-LF	SAMPO / YIVNMS0018D11-B
Battery	CELXPERT / CBPIL72	SMP / SQU-718
Bluetooth	MSI / MS-6837D	MSI / MS-6837D
TV-tuner	KWORLD / MC810	KWORLD / MC810

ITEM	MODE3	MODE4
CPU	INTEL P8400/2.26GHz	INTEL T9400/2.53GHz
Display/Resolution	LCD+CRT/1366*768/60Hz	LCD+HDMI/1366*768/60Hz
Panel	SAMSUNG/LTN160AT01-A01	CHI MEI/N156B3-L02
H.D.D	Fujitsu MHY2250BH	Fujitsu MHZ2320BH
O.D.D.	HLDS GSA-T50N	HLDS GCC-T20N
Wireless LAN Card	Atheros / AR5B91	MSI/MS-6890
Modem Module	LSI/D40	LSI/D40
Memory	Kingston (Hynix) KVR667D2S5	Transcend (ElpidawBGA) TS128MSQ64V6J
Web Camera	CHICONY/CNF7231	CHICONY/CNF7231
AC Adapter	LI SHIN/LSE0202C1990	DELTA/ADP-90SB BB
Inverter	SUMIDA/IN1408/T-LF	SAMPO/YIVNMS0018D11-B
Battery	CELXPERT/CBPIL72	SMP/SQU-718
Bluetooth	MSI/MS-6837D	MSI/MS-6837D
TV-tuner	KWORLD/MC810	KWORLD/MC810

ITEM	MODE5	MODE6
CPU	INTEL QZNM/2.4GHz	INTEL P8400/2.26GHz
Display/Resolution	LCD+CRT/1366*768/60Hz	LCD+HDMI/1366*768/60Hz
Panel	CHI MEI/N156B3-L01	SAMSUNG/LTN160AT01-A01
H.D.D	Toshiba MK1646GSX	Toshiba MK2546GSX
O.D.D.	PLDS DS-8A2S	TSST TS-L633A
Wireless LAN Card	Atheros / AR5B91	INTEL/512AN_HMW
Modem Module	LSI/D40	LSI/D40
Memory	Transcend (ETT) JM488Q643A-6	UNIFOSA(Elpida) GU331G0AJEPN6E20
Web Camera	CHICONY/CNF7231	CHICONY/CNF7231
AC Adapter	LI SHIN/LSE0202C1990	DELTA/ADP-90SB BB
Inverter	SUMIDA/IN1408/T-LF	SAMPO/YIVNMS0018D11-B
Battery	CELXPERT/CBPIL72	SMP/SQU-718
Bluetooth	MSI/MS-6837D	MSI/MS-6837D
TV-tuner	KWORLD/MC810	KWORLD/MC810

ITEM	MODE7	MODE8
CPU	INTEL T9400/2.53GHz	INTEL QZNM/2.4GHz
Display/Resolution	LCD+CRT/1366*768/60Hz	LCD+HDMI/1366*768/60Hz
Panel	CHI MEI/N156B3-L02	CHI MEI/N156B3-L01
H.D.D	Toshiba MK3252GSX	Hitachi HTS541616J9SA00
O.D.D.	SONY BC-5500S-01	SONY AD-7560S
Wireless LAN Card	INTEL/533AN_HMW	MSI / MS-6890
Modem Module	LSI/D40	LSI/D40
Memory	A-DATA (ETT) ADOPE1A16332	Transcend (Micron) TS256MSQ64V6U
Web Camera	CHICONY/CNF7231	CHICONY/CNF7231
AC Adapter	LI SHIN/LSE0202C1990	DELTA/ADP-90SB BB
Inverter	SUMIDA/IN1408/T-LF	SAMPO/YIVNMS0018D11-B
Battery	CELXPERT/CBPIL72	SMP/SQU-718
Bluetooth	MSI/MS-6837D	MSI/MS-6837D
TV-tuner	KWORLD/MC810	KWORLD/MC810

ITEM	MODE9	MODE10
CPU	INTEL P8400/2.26GHz	INTEL T9400/2.53GHz
Display/Resolution	LCD+CRT/1366*768/60Hz	LCD+HDMI/1366*768/60Hz
Panel	SAMSUNG / LTN160AT01-A01	CHI MEI/N156B3-L02
H.D.D	WD 1200BEVS	WD 1600BEVS
O.D.D.	HLDS / GSA-T50N	HLDS / GCC-T20N
Wireless LAN Card	MSI / MS-6890	Atheros / AR5B91
Modem Module	LSI/D40	LSI/D40
Memory	Kingston (Micron) KVR667D2S5	Transcend (Samsung) TS256MSQ64V6N
Web Camera	CHICONY/CNF7231	CHICONY/CNF7231
AC Adapter	LI SHIN/LSE0202C1990	DELTA/ADP-90SB BB
Inverter	SUMIDA/IN1408/T-LF	SAMPO/YIVNMS0018D11-B
Battery	CELXPERT/CBPIL72	SMP/SQU-718
Bluetooth	MSI/MS-6837D	MSI/MS-6837D
TV-tuner	KWORLD/MC810	KWORLD/MC810

ITEM	MODE11	MODE12
CPU	INTEL QZNM/2.4GHz	INTEL P8400/2.26GHz
Display/Resolution	LCD+CRT/1366*768/60Hz	LCD+HDMI/1366*768/60Hz
Panel	CHI MEI/N156B3-L01	SAMSUNG / LTN160AT01-A01
H.D.D	WD 2500BEVS	WD WD3200BEVT
O.D.D.	PLDS / DS-8A2S	TSST / TS-L633A
Wireless LAN Card	INTEL / 512AN_HMW	INTEL / 533AN_HMW
Modem Module	LSI/D40	LSI/D40
Memory	TRANSCEND TS256MSQ64V6U	UNIFOSA GU332G0ALEPR8H2F
Web Camera	CHICONY / CNF7231	CHICONY / CNF7231
AC Adapter	LI SHIN / LSE0202C1990	DELTA / ADP-90SB BB
Inverter	SUMIDA / TWS-400-9652	SAMPO/YIVNMS0018D11-B
Battery	CELXPERT / CBPIL72	SMP / SQU-718
Bluetooth	MSI / MS-6837D	MSI / MS-6837D
TV-tuner	KWORLD / MC810	KWORLD / MC810

<b>ITEM</b>	<b>MODE13</b>	<b>MODE14</b>
CPU	INTEL T9400/2.53GHz	INTEL QZNM/2.4GHz
Display/Resolution	LCD+CRT/1366*768/60Hz	LCD+HDMI/1366*768/60Hz
Panel	CMO / N156B3-L02	CMO / N156B3-L01
H.D.D	Fujitsu / MHY2160BH	Fujitsu / MHY2200BH
O.D.D.	SONY BC-5500S-01	SONY AD-7560S
Wireless LAN Card	Atheros / AR5B91	MSI / MS-6890
Modem Module	LSI/D40	LSI/D40
Memory	TRANSCEND TS256MSQ64V8U	SAMSUNG M470T5663QZ3- CF7
Web Camera	CHICONY / CNF7231	CHICONY / CNF7231
AC Adapter	LI SHIN / LSE0202C1990	DELTA / ADP-90SB BB
Inverter	SUMIDA / TWS-400-9652	SAMPO / YIVNMS0018D11-B
Battery	CELXPERT / CBPIL72	SMP / SQU-718
Bluetooth	MSI / MS-6837D	MSI / MS-6837D
TV-tuner	KWORLD / MC810	KWORLD / MC810

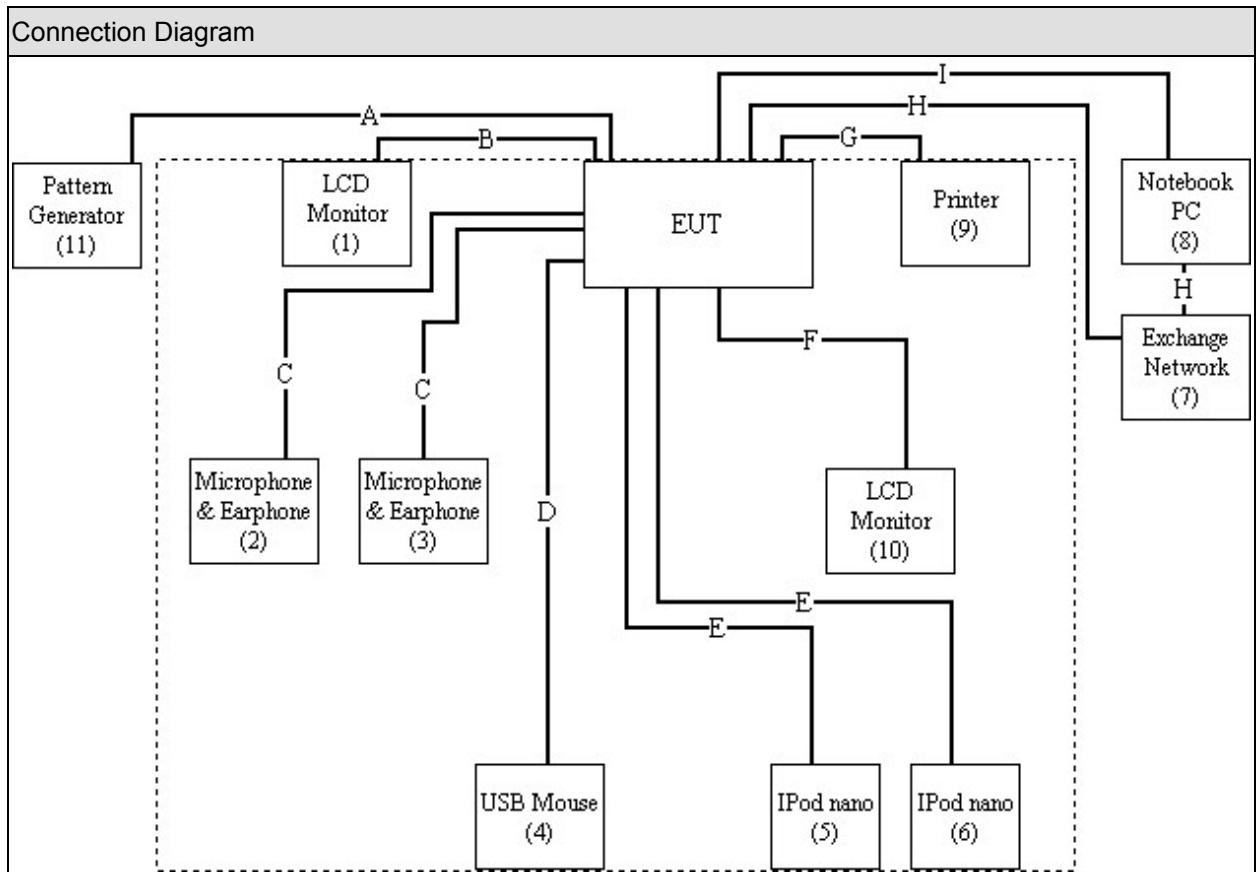
<b>ITEM</b>	<b>MODE15</b>	<b>MODE16</b>
CPU	INTEL P8400/2.26GHz	INTEL T9400/2.53GHz
Display/Resolution	LCD+CRT/1366*768/60Hz	LCD+HDMI/1366*768/60Hz
Panel	SAMSUNG / LTN160AT01-A01	CMO / N156B3-L02
H.D.D	Fujitsu / MHZ2320BH	Fujitsu / MHZ2320BH
O.D.D.	HLDS / GSA-T50N	HLDS / GCC-T20N
Wireless LAN Card	Atheros / AR5B91	INTEL / 512AN_HMW
Modem Module	LSI/D40	LSI/D40
Memory	TRANSCEND TS256MSQ64V8U	TRANSCEND JM800QSU-2G
Web Camera	CHICONY / CNF7231	CHICONY / CNF7231
AC Adapter	LI SHIN / LSE0202C1990	DELTA / ADP-90SB BB
Inverter	SUMIDA / TWS-400-9652	SAMPO / YIVNMS0018D11-B
Battery	CELXPERT / CBPIL72	SMP / SQU-718
Bluetooth	MSI / MS-6837D	MSI / MS-6837D
TV-tuner	KWORLD / MC810	KWORLD / MC810

### 1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Monitor	Dell	2407WFPb	CN-0FC255-46633-638-1MDS	Non-Shielded, 1.8m
2	Microphone & Earphone	PCHOME	N/A	N/A	N/A
3	Microphone & Earphone	PCHOME	N/A	N/A	N/A
4	USB Mouse	Logitech	M-BE58	HCA30103100	N/A
5	IPod nano	Apple	A1236	YM823SUQY0P	N/A
6	IPod nano	Apple	A1236	YM823SWVY0P	N/A
7	Exchange Network	Sun Moon Star	PX-4	95170087	Non-Shielded, 1.8m
8	Notebook PC	DELL	PP04X	2D2ZM1S	Non-Shielded, 1.8m
9	Printer	EPSON	StyLus C63	FAPY094331	Non-Shielded, 1.8m
10	LCD Monitor	Dell	2408WFPb	CN-0NN792-74261-82S-0Y8S	Non-Shielded, 1.8m
11	Pattern Generator	PROMAX	GV-798AEU06	010703640001	Non-Shielded, 1.8m

#### 1.4. Configuration of Tested System



Signal Cable Type		Signal cable Description
A	Coaxial Cable	Shielded, 3m
B	D-SUB Cable	Shielded, 1.8m, with two ferrite cores bonded
C	Microphone & Earphone Cable	Non-Shielded, 1.8m, two PCS.
D	USB Mouse Cable	Shielded, 1.8m
E	IPOD Cable	Shielded, 1.2m, two PCS.
F	HDMI Cable	Shielded, 1.8m
G	USB Cable	Shielded, 1.5m
H	Telecom Cable	Non-Shielded, 3m, two PCS.
I	LAN Cable	Non-Shielded, 3m

**1.5. EUT Exercise Software**

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment.
3	Personal Computer reads data from disk.
4	Personal Computer sends "H" pattern to printer, the printer will print "H" pattern on paper.
5	Personal Computer reads and writes data into and from modem.
6	Repeat the above procedure (4) to (5).

## 2. Technical Test

### 2.1. Summary of Test Result

- No deviations from the test standards  
 Deviations from the test standards as below description:

Emission			
Performed Item	Normative References	Test Performed	Deviation
Conducted Emission	EN 55022:2006 Class B	Yes	No
Impedance Stabilization Network	EN 55022:2006 Class B	Yes	No
Radiated Emission	EN 55022:2006 Class B	Yes	No
Power Harmonics	EN 61000-3-2:2006	Yes	No
Voltage Fluctuation and Flicker	EN 61000-3-3:1995+A1: 2001+A2: 2005	Yes	No

Immunity			
Performed Item	Normative References	Test Performed	Deviation
Electrostatic Discharge	IEC 61000-4-2 Edition 1.2: 2001-04	Yes	No
Radiated susceptibility	IEC 61000-4-3 Edition 3.0: 2006	Yes	No
Electrical fast transient/burst	IEC 61000-4-4:2004	Yes	No
Surge	IEC 61000-4-5 Edition 2.0: 2005	Yes	No
Conducted susceptibility	IEC 61000-4-6 Edition 2.2: 2006	Yes	No
Power frequency magnetic field	IEC 61000-4-8 Edition 1.1: 2001-03	Yes	No
Voltage dips and interruption	IEC 61000-4-11 2nd Edition: 2004-03	Yes	No

## 2.2. List of Test Equipment

### Conducted Emission / SR1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESCS 30	100366	2007/10/18
LISN	R&S	ENV4200	833209/007	2008/08/12
LISN	R&S	ENV216	100085	2008/02/14
Pulse Limiter	R&S	ESH3-Z2	357.88.10.52	2008/09/04

### Impedance Stabilization Network / SR1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Capacitive Voltage Probe	Schaffner	CVP2200A	18331	2007/11/10
EMI Test Receiver	R&S	ESCS 30	100366	2007/10/18
LISN	R&S	ENV216	100085	2008/02/14
LISN	R&S	ENV4200	833209/007	2008/07/13
Impedance Stabilization Network	Schaffner	ISN T400	19099	2008/07/15
Pulse Limiter	R&S	ESH3-Z2	357.88.10.52	2008/09/04
RF Current Probe	FCC	F-65 10KHz~1GHz	198	2007/11/10
BALANCED TELECOM ISN	FCC	FCC-TLISN-T2-02	20316	2007/11/24
BALANCED TELECOM ISN	FCC	FCC-TLISN-T4-02	20317	2007/11/24
BALANCED TELECOM ISN	FCC	FCC-TLISN-T8-02	20319	2007/11/24

### Radiated Emission / Site3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2704	2008/09/15
Broadband Horn Antenna	Schwarzbeck	BBHA9170	208	2008/07/25
EMI Test Receiver	R&S	ESCS 30	838251/001	2008/03/22
Horn Antenna	Schwarzbeck	BBHA9120D	305	2008/08/10
Pre-Amplifier	QTK	N/A	N/A	2008/01/03
Spectrum Analyzer	Advantest	R3162	101102468	2007/10/24
EMI Test Receiver	R&S	ESI 26	838786/004	2008/05/25
Pre-Amplifier	MITEQ	QMF-4D-18040 0-45-6P	925974	2008/01/03

### Power Harmonics / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AC Power Source(Harmonic)	Schaffner	NSG 1007	HK54148	2008/06/23
IEC1000-4-X Analyzer(Flicker)	Schaffner	CCN 1000-1	X7 1887	2008/06/23

### Voltage Fluctuation and Flicker / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AC Power Source(Harmonic)	Schaffner	NSG 1007	HK54148	2008/06/23
IEC1000-4-X Analyzer(Flicker)	Schaffner	CCN 1000-1	X7 1887	2008/06/23

## Electrostatic Discharge / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
ESD simulator system	TESEQ	NSG 438	695	2008/01/17
Horizontal Coupling Plane(HCP)	QuieTek	HCP AL50	N/A	N/A
Vertical Coupling Plane(VCP)	QuieTek	VCP AL50	N/A	N/A

## Radiated susceptibility / CB5

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
AF-BOX	R&S	AF-BOX ACCUST	100007	N/A
Audio Analyzer	R&S	UPL 16	100137	2008/04/23
Bilog Antenna	Schaffner Chase	CBL6112B	2450	2008/01/03
Broad-Band Antenna	Schwarzbeck	VULB 9166	1085	2008/08/02
Biconilog Antenna	EMCO	3149	00071675	2008/05/29
CMU200 UNIV.RADIOCOMM	R&S	CMU200	104846	2008/04/23
Directional Coupler	A&R	DC 6180	22735	N/A
Dual Microphone Supply	B&K	5935	2426784	2008/08/04
Mouth Simulator	B&K	4227	2439692	2008/08/04
Power Amplifier	A&R	30S1G3	309453	N/A
Power Amplifier	A&R	100W10000M7	A285000010	N/A
Power Amplifier	SCHAFFNER	CBA9413B	4020	N/A
Power Amplifier	AR	75A250A	0325371	N/A
Power Meter	R&S	NRVD(P.M)	100219	2008/04/22
Pre-Amplifier	A&R	150A220	23067	N/A
Probe Microphone	B&K	4182	2278070	2008/08/04
Signal Generator	R&S	SMY02(9K-208 0)	825454/028	2007/09/22

## Electrical fast transient/burst / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMC immunity system	Thermo	N/A	411225	2007/12/01

## Surge / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMC immunity system	Thermo	EMCPRO PLUS	0411225	2007/12/01

## Conducted susceptibility / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Schaffner NSG 2070 RF-Generator	Schaffner	N/A	N/A	2008/04/21

## Power frequency magnetic field / SR3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Induction Coil Interface	Schaffner	INA 2141	6002	N/A
Magnetic Loop Coil	Schaffner	INA 702	160	N/A
Triaxial ELF Magnetic Field Meter	F.B.BELL	4090	9852	2008/05/30

## Voltage dips and interruption / SR6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMC immunity system	Thermo	EMCPRO PLUS	0411225	2007/12/01

## Schaffner NSG 2050 System Mainframe

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Burst 4.8KV/16A Generator with CDN	Schaffner	PNW2225	200123-098SC	2007/12/28
Damped osc. Wave 100kHz and 1MHz	Schaffner	PNW2056	200124-058SC	2007/12/28
Double AC Source Variator	Schaffner	NSG 642A	30910014938	2007/12/28
Hybrid surge pulse 1.2/50uS	Schaffner	PNW 2050	20532-514LU	2007/12/28
PQT Generator	Schaffner	PNW2003	200138-007SC	2008/01/02
Pulse COUPLING NETWORK	Schaffner	CDN131	200124-007SC	2007/12/28

## Schaffner NSG 2070 RF-Generator

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
CDN	Schaffner	CAL U100A	20405	2008/04/21
CDN	Schaffner	TRA U150	20454	2008/04/21
CDN M016S	Schaffner	CAL U100A	20410	2008/04/21
CDN M016S	Schaffner	TRA U150	21167	2008/04/21
CDN T002	Schaffner	CAL U100	20491	2008/04/21
CDN T002	Schaffner	TRA U150	21169	2008/04/21
CDN T400	Schaffner	CAL U100	17735	2008/04/21
CDN T400	Schaffner	TRA U150	21166	2008/04/21
Coupling Decoupling Network	Schaffner	CDN M016S	20822	2008/02/23
Coupling Decoupling Network	Schaffner	CDN M016S	20823	2008/04/21
Coupling Decoupling Network	Schaffner	CDN T002	19018	2008/04/21
Coupling Decoupling Network	Schaffner	CDN T400	21226	2008/04/21
EM-CLAMP	Schaffner	KEMZ 801	21024	2008/04/21

## 2.3. Measurement Uncertainty

### Conducted Emission

The measurement uncertainty is evaluated as  $\pm$  2.26 dB.

### Impedance Stabilization Network

The measurement uncertainty is evaluated as  $\pm$  2.26 dB.

### Radiated Emission

The measurement uncertainty is evaluated as  $\pm$  3.19 dB.

### Electrostatic Discharge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in ESD testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant ESD standards. The immunity test signal from the ESD system meet the required specifications in IEC 61000-4-2 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63 % and 2.76%.

### Radiated susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in RS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant RS standards. The immunity test signal from the RS system meet the required specifications in IEC 61000-4-3 through the calibration for the uniform field strength and monitoring for the test level with the uncertainty evaluation report for the electrical filed strength as being 2.72 dB.

### Electrical fast transient/burst

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in EFT/Burst testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant EFT/Burst standards. The immunity test signal from the EFT/Burst system meet the required specifications in IEC 61000-4-4 through the calibration report with the calibrated uncertainty for the waveform of voltage, frequency and timing as being 1.63 %, 2.8 10-10 and 2.76%.

### Surge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in Surge testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant Surge standards. The immunity test signal from the Surge system meet the required specifications in IEC 61000-4-5 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63 % and 2.76%.

**Conducted susceptibility**

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in CS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant CS standards. The immunity test signal from the CS system meet the required specifications in IEC 61000-4-6 through the calibration for unmodulated signal and monitoring for the test level with the uncertainty evaluation report for the injected modulated signal level through CDN and EM Clamp/Direct Injection as being 3.72 dB and 2.78 dB.

**Power frequency magnetic field**

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in PFM testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant PFM standards. The immunity test signal from the PFM system meet the required specifications in IEC 61000-4-8 through the calibration report with the calibrated uncertainty for the Gauss Meter to verify the output level of magnetic field strength as being 2 %.

**Voltage dips and interruption**

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in DIP testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant DIP standards. The immunity test signal from the DIP system meet the required specifications in IEC 61000-4-11 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63 % and 2.76%.

## 2.4. Test Environment

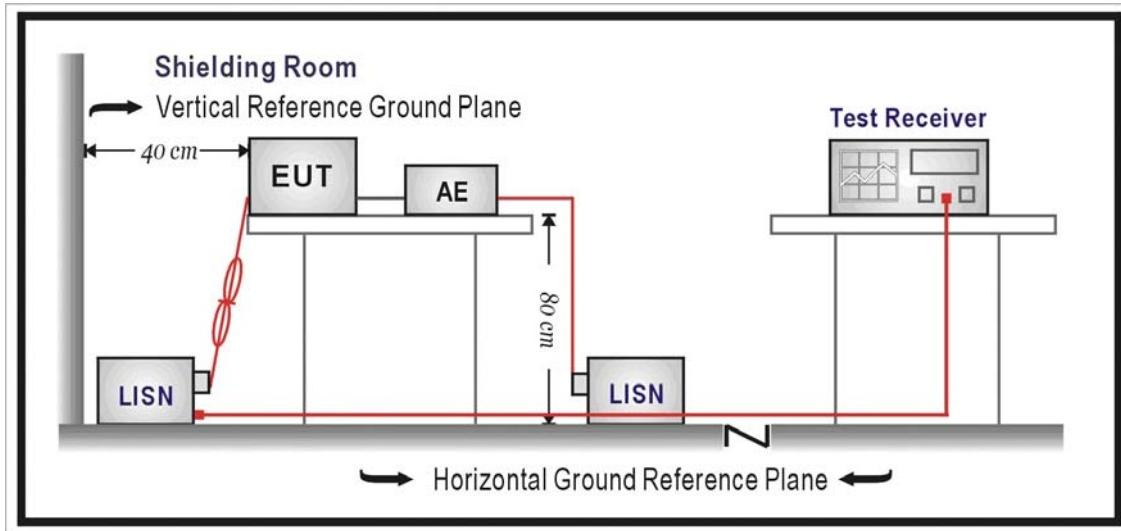
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Impedance Stabilization Network	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Electrostatic Discharge	Temperature (°C)	15-35	21
	Humidity (%RH)	30-60	52
	Barometric pressure (mbar)	860-1060	950-1000
Radiated susceptibility	Temperature (°C)	15-35	22
	Humidity (%RH)	25-75	52
	Barometric pressure (mbar)	860-1060	950-1000
Electrical fast transient/burst	Temperature (°C)	15-35	22
	Humidity (%RH)	25-75	53
	Barometric pressure (mbar)	860-1060	950-1000
Surge	Temperature (°C)	15-35	22
	Humidity (%RH)	10-75	53
	Barometric pressure (mbar)	860-1060	950-1000
Conducted susceptibility	Temperature (°C)	15-35	22
	Humidity (%RH)	25-75	52
	Barometric pressure (mbar)	860-1060	950-1000
Power frequency magnetic field	Temperature (°C)	15-35	22
	Humidity (%RH)	25-75	53
	Barometric pressure (mbar)	860-1060	950-1000
Voltage dips and interruption	Temperature (°C)	15-35	22
	Humidity (%RH)	25-75	53
	Barometric pressure (mbar)	860-1060	950-1000

### 3. Conducted Emission (Main Terminals)

#### 3.1. Test Specification

According to EMC Standard : EN 55022

#### 3.2. Test Setup



#### 3.3. Limit

Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 – 46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

### **3.4. Test Procedure**

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination.

(Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on conducted measurement.

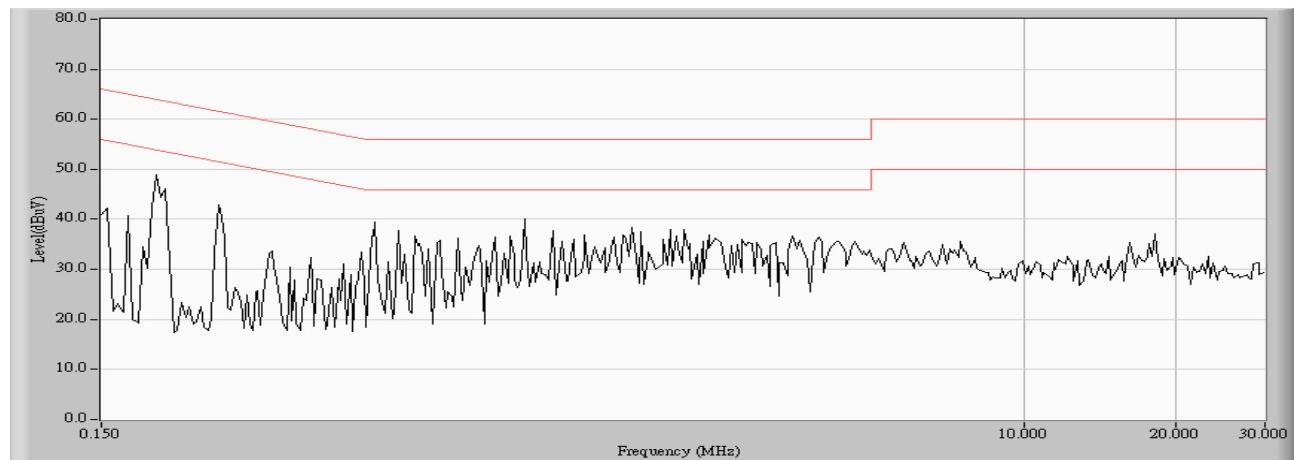
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

### **3.5. Deviation from Test Standard**

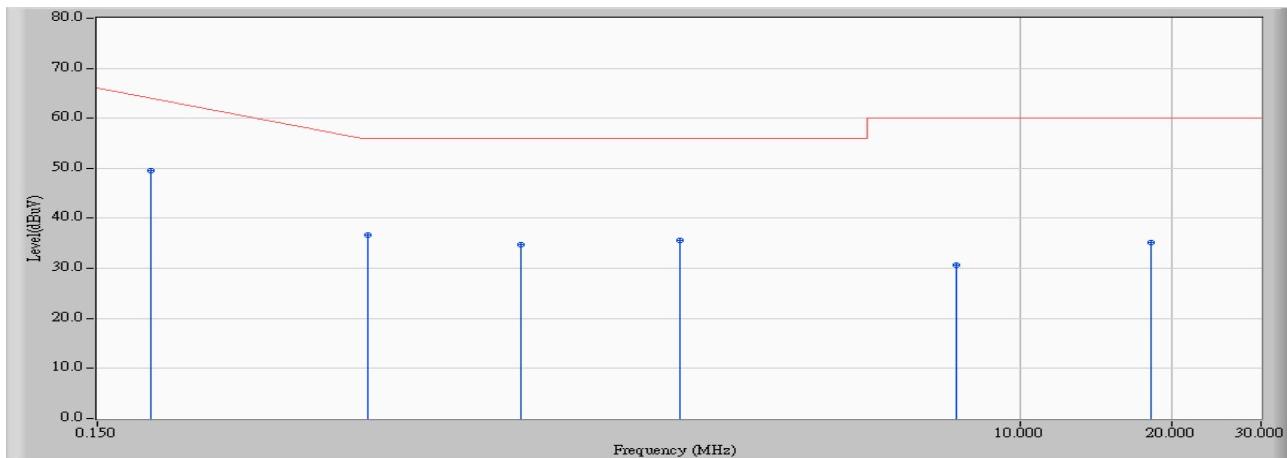
No deviation.

### 3.6. Test Result

Site : SR-1	Time : 2008/08/18 - 10:01
Limit : CISPR_B_00M_QP	Margin : 10
EUT : Notebook	Probe : ENV-216-L1 - Line1
Power : AC 230V/50Hz	Note : Mode 1



Site : SR-1	Time : 2008/08/18 - 10:04
Limit : CISPR_B_00M_QP	Margin : 0
EUT : Notebook	Probe : ENV-216-L1 - Line1
Power : AC 230V/50Hz	Note : Mode 1

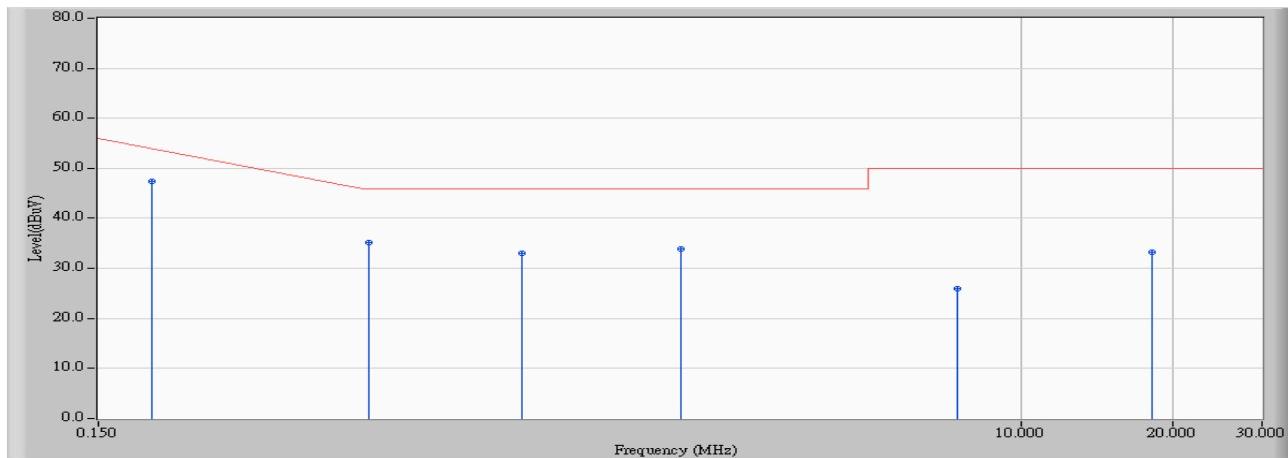


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.192	9.821	39.710	49.531	-15.269	64.800	QUASIPEAK
2		0.514	9.820	26.800	36.620	-19.380	56.000	QUASIPEAK
3		1.033	9.830	24.940	34.770	-21.230	56.000	QUASIPEAK
4		2.130	9.850	25.730	35.580	-20.420	56.000	QUASIPEAK
5		7.485	9.893	20.810	30.703	-29.297	60.000	QUASIPEAK
6		18.244	10.200	25.010	35.210	-24.790	60.000	QUASIPEAK

#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 10:04
Limit : CISPR_B_00M_AV	Margin : 0
EUT : Notebook	Probe : ENV-216-L1 - Line1
Power : AC 230V/50Hz	Note : Mode 1

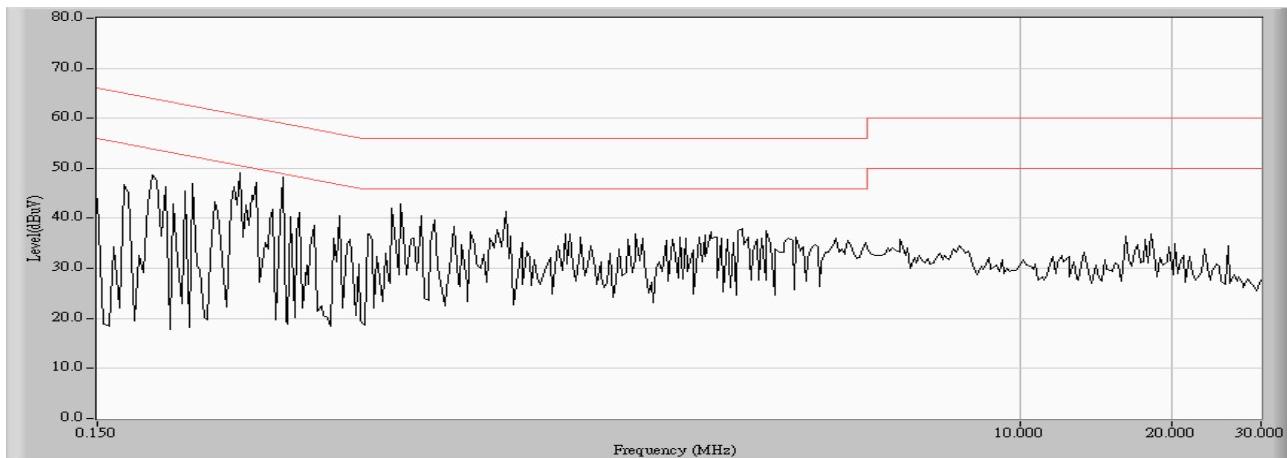


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.192	9.821	37.570	47.391	-7.409	54.800	AVERAGE
2		0.514	9.820	25.460	35.280	-10.720	46.000	AVERAGE
3		1.033	9.830	23.220	33.050	-12.950	46.000	AVERAGE
4		2.130	9.850	23.980	33.830	-12.170	46.000	AVERAGE
5		7.485	9.893	16.090	25.983	-24.017	50.000	AVERAGE
6		18.244	10.200	23.020	33.220	-16.780	50.000	AVERAGE

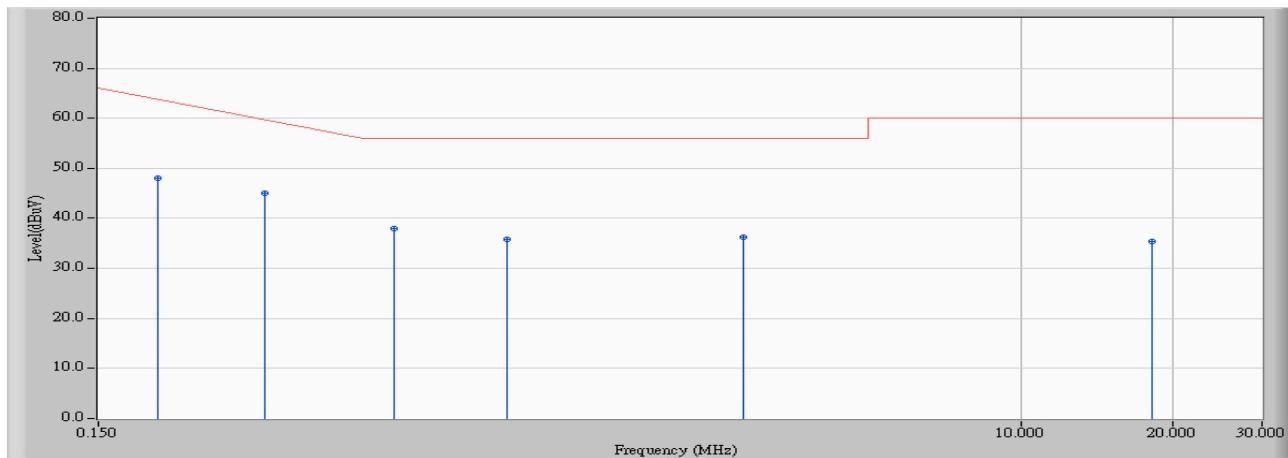
#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 10:05
Limit : CISPR_B_00M_QP	Margin : 10
EUT : Notebook	Probe : ENV-216-N - Line2
Power : AC 230V/50Hz	Note : Mode 1



Site : SR-1	Time : 2008/08/18 - 10:07
Limit : CISPR_B_00M_QP	Margin : 0
EUT : Notebook	Probe : ENV-216-N - Line2
Power : AC 230V/50Hz	Note : Mode 1

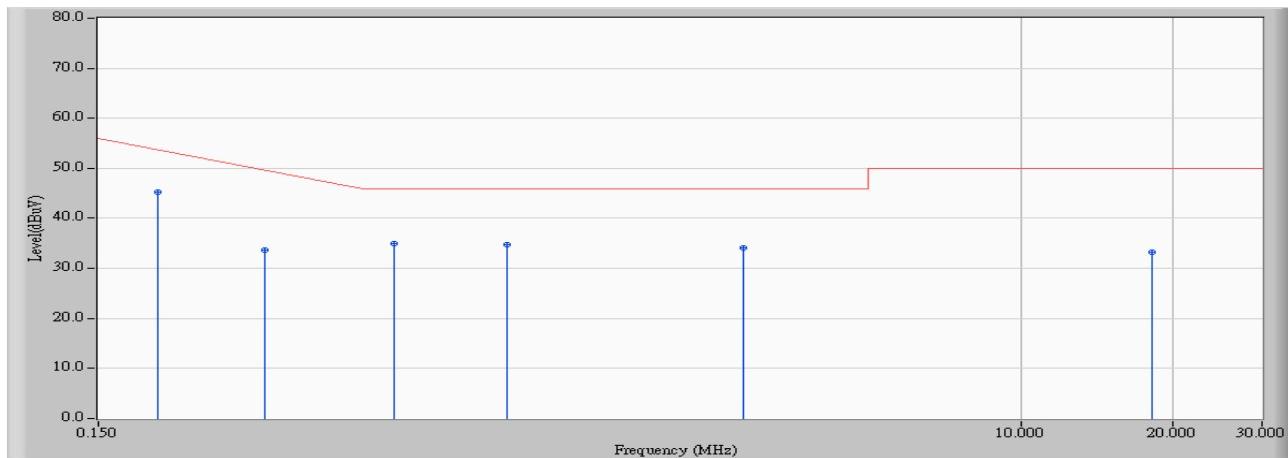


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.196	9.860	38.100	47.960	-16.726	64.686	QUASIPEAK
2	*	0.321	9.850	35.180	45.030	-16.084	61.114	QUASIPEAK
3		0.578	9.830	28.180	38.010	-17.990	56.000	QUASIPEAK
4		0.966	9.830	25.920	35.750	-20.250	56.000	QUASIPEAK
5		2.837	9.860	26.340	36.200	-19.800	56.000	QUASIPEAK
6		18.244	10.220	25.090	35.310	-24.690	60.000	QUASIPEAK

#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 10:07
Limit : CISPR_B_00M_AV	Margin : 0
EUT : Notebook	Probe : ENV-216-N - Line2
Power : AC 230V/50Hz	Note : Mode 1

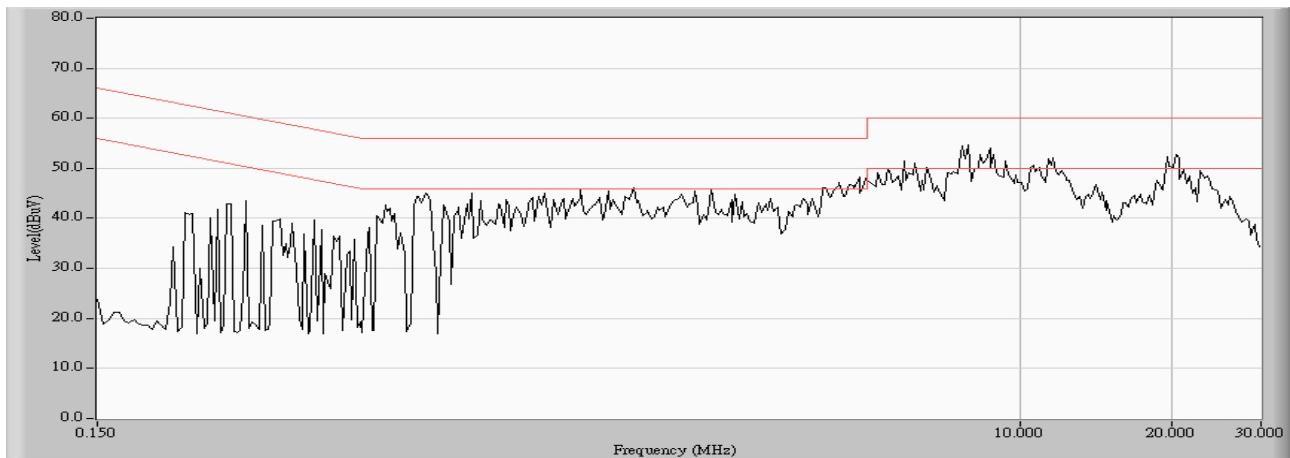


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.196	9.860	35.480	45.340	-9.346	54.686	AVERAGE
2		0.321	9.850	23.920	33.770	-17.344	51.114	AVERAGE
3		0.578	9.830	25.080	34.910	-11.090	46.000	AVERAGE
4		0.966	9.830	24.900	34.730	-11.270	46.000	AVERAGE
5		2.837	9.860	24.270	34.130	-11.870	46.000	AVERAGE
6		18.244	10.220	23.020	33.240	-16.760	50.000	AVERAGE

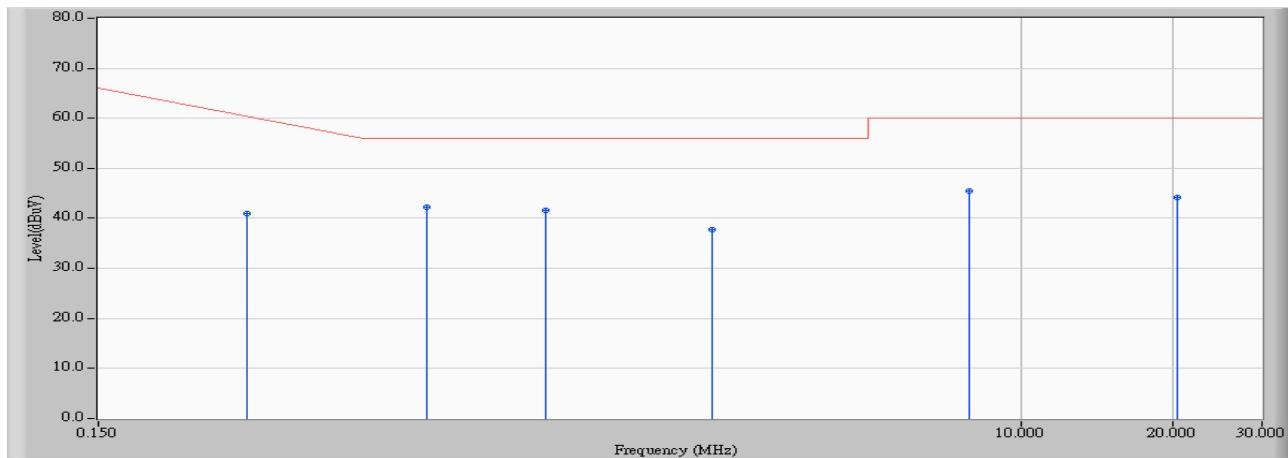
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 11:34
Limit : CISPR_B_00M_QP	Margin : 10
EUT : Notebook	Probe : ENV-216-L1 - Line1
Power : AC 230V/50Hz	Note : Mode 2



Site : SR-1	Time : 2008/08/18 - 11:35
Limit : CISPR_B_00M_QP	Margin : 0
EUT : Notebook	Probe : ENV-216-L1 - Line1
Power : AC 230V/50Hz	Note : Mode 2

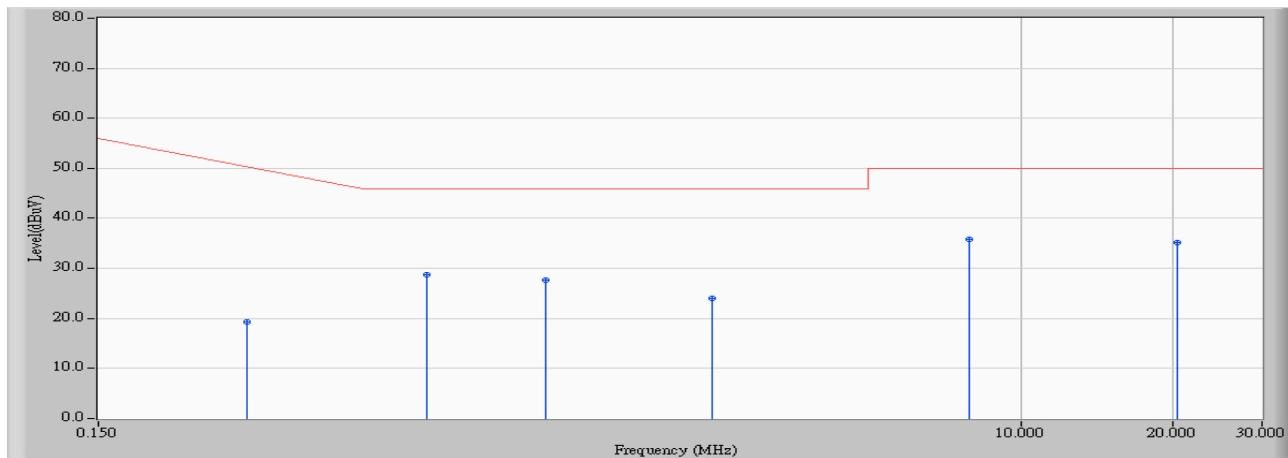


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.295	9.830	31.060	40.890	-20.967	61.857	QUASIPEAK
2	*	0.670	9.830	32.440	42.270	-13.730	56.000	QUASIPEAK
3		1.146	9.830	31.710	41.540	-14.460	56.000	QUASIPEAK
4		2.455	9.850	27.960	37.810	-18.190	56.000	QUASIPEAK
5		7.920	9.900	35.630	45.530	-14.470	60.000	QUASIPEAK
6		20.423	10.210	33.870	44.080	-15.920	60.000	QUASIPEAK

#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 11:35
Limit : CISPR_B_00M_AV	Margin : 0
EUT : Notebook	Probe : ENV-216-L1 - Line1
Power : AC 230V/50Hz	Note : Mode 2

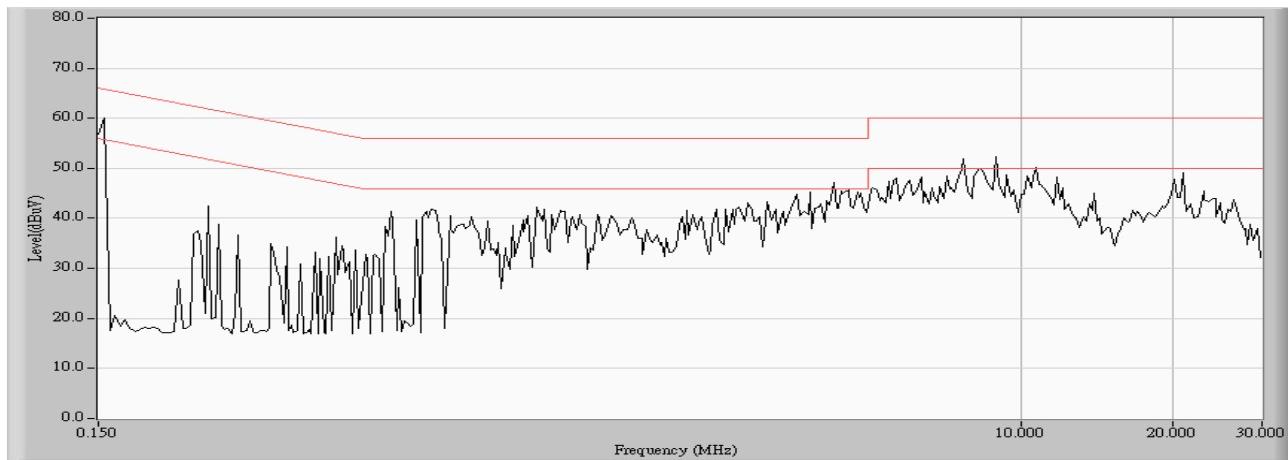


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.295	9.830	9.460	19.290	-32.567	51.857	AVERAGE
2	0.670	9.830	19.000	28.830	-17.170	46.000	AVERAGE
3	1.146	9.830	17.840	27.670	-18.330	46.000	AVERAGE
4	2.455	9.850	14.250	24.100	-21.900	46.000	AVERAGE
5	* 7.920	9.900	25.980	35.880	-14.120	50.000	AVERAGE
6	20.423	10.210	25.070	35.280	-14.720	50.000	AVERAGE

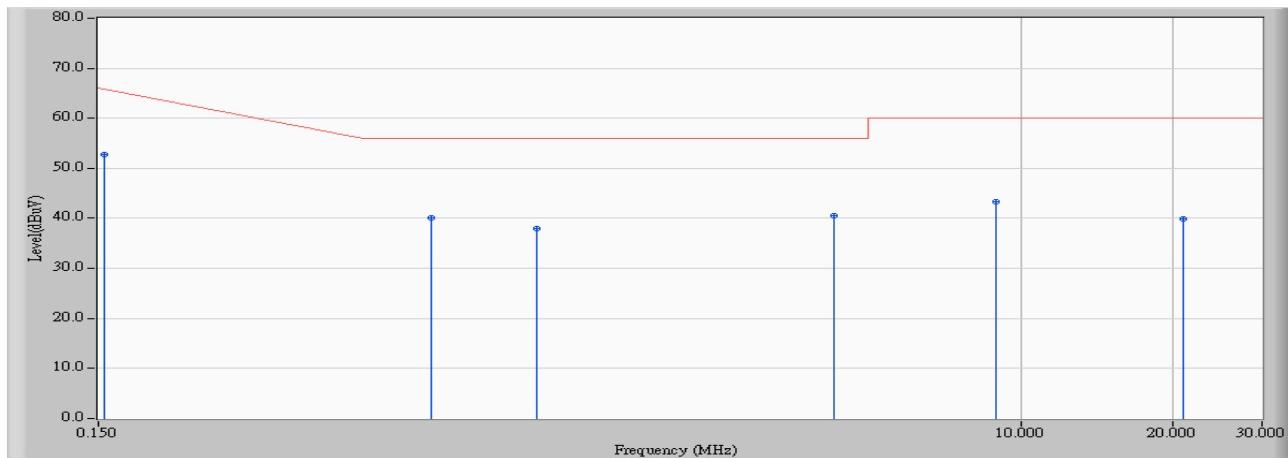
#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 11:36
Limit : CISPR_B_00M_QP	Margin : 10
EUT : Notebook	Probe : ENV-216-N - Line2
Power : AC 230V/50Hz	Note : Mode 2



Site : SR-1	Time : 2008/08/18 - 11:37
Limit : CISPR_B_00M_QP	Margin : 0
EUT : Notebook	Probe : ENV-216-N - Line2
Power : AC 230V/50Hz	Note : Mode 2

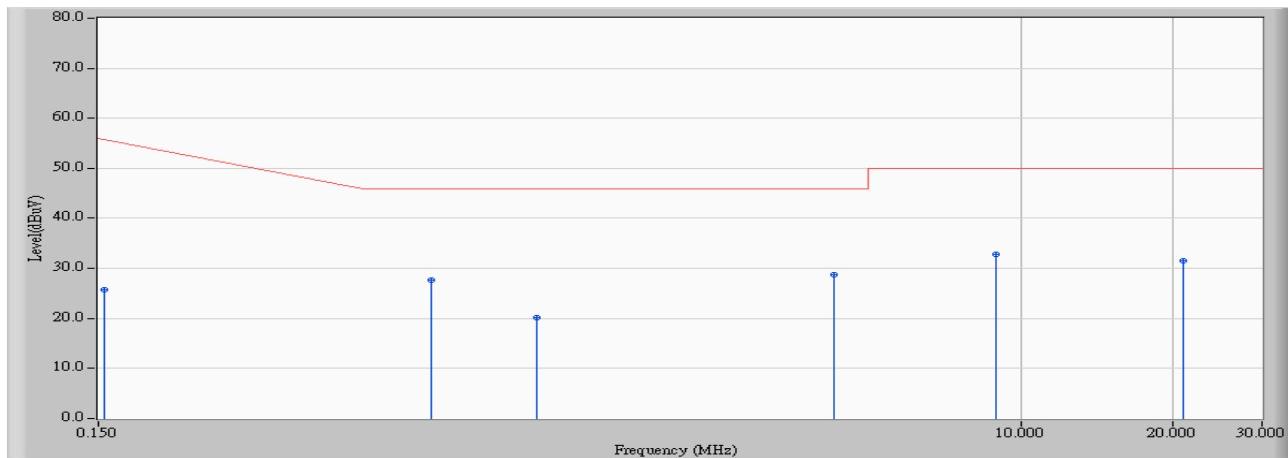


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.154	9.875	42.830	52.705	-13.181	65.886	QUASIPEAK
2		0.685	9.830	30.280	40.110	-15.890	56.000	QUASIPEAK
3		1.107	9.830	28.150	37.980	-18.020	56.000	QUASIPEAK
4		4.263	9.869	30.560	40.429	-15.571	56.000	QUASIPEAK
5		8.927	9.920	33.380	43.300	-16.700	60.000	QUASIPEAK
6		20.904	10.140	29.670	39.810	-20.190	60.000	QUASIPEAK

#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 11:37
Limit : CISPR_B_00M_AV	Margin : 0
EUT : Notebook	Probe : ENV-216-N - Line2
Power : AC 230V/50Hz	Note : Mode 2



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.154	9.875	15.880	25.755	-30.131	55.886	AVERAGE
2	0.685	9.830	17.770	27.600	-18.400	46.000	AVERAGE
3	1.107	9.830	10.380	20.210	-25.790	46.000	AVERAGE
4	4.263	9.869	18.810	28.679	-17.321	46.000	AVERAGE
5 *	8.927	9.920	22.870	32.790	-17.210	50.000	AVERAGE
6	20.904	10.140	21.420	31.560	-18.440	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

### 3.7. Test Photograph

Test Mode : Mode 1

Description : Front View of Conducted Test



Test Mode : Mode 1

Description : Back View of Conducted Test



Test Mode : Mode 2

Description : Front View of Conducted Test



Test Mode : Mode 2

Description : Back View of Conducted Test

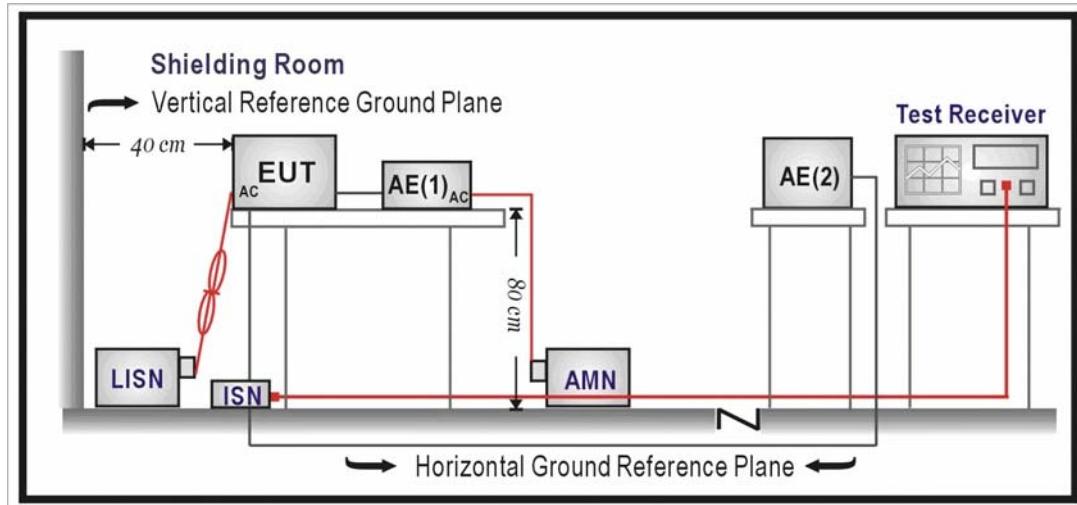


## 4. Conducted Emissions (Telecommunication Ports)

### 4.1. Test Specification

According to EMC Standard : EN 55022

### 4.2. Test Setup



### 4.3. Limit

Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	84 – 74	74 – 64
0.50 - 30	74	64

Remarks:

The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz~0.50 MHz.

#### **4.4. Test Procedure**

##### **Telecommunication Port:**

The mains voltage shall be supplied to the EUT via the LISN when the measurement of telecommunication port is performed. The common mode disturbances at the telecommunication port shall be connected to the ISN, which is 150 ohm impedance.

Both alternative cables are tested related to the LCL requested. The measurement range is from 150kHz to 30MHz. The bandwidth of measurement is set to 9kHz.

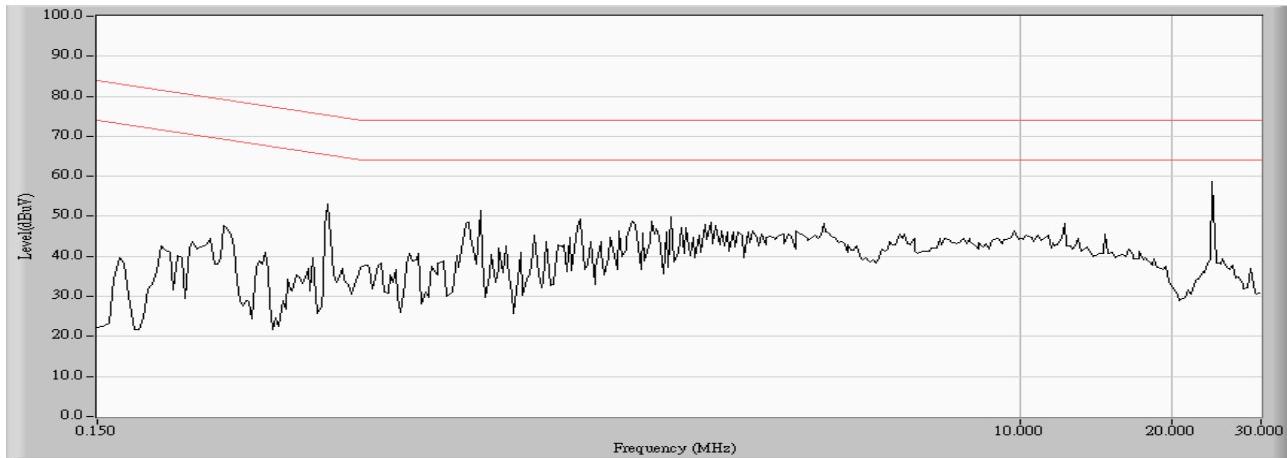
The 75dB LCL ISN is used for cat. 6 cable, the 65dB LCL ISN is used for cat. 5 cable, 55dB LCL ISN is used for cat. 3.

#### **4.5. Deviation from Test Standard**

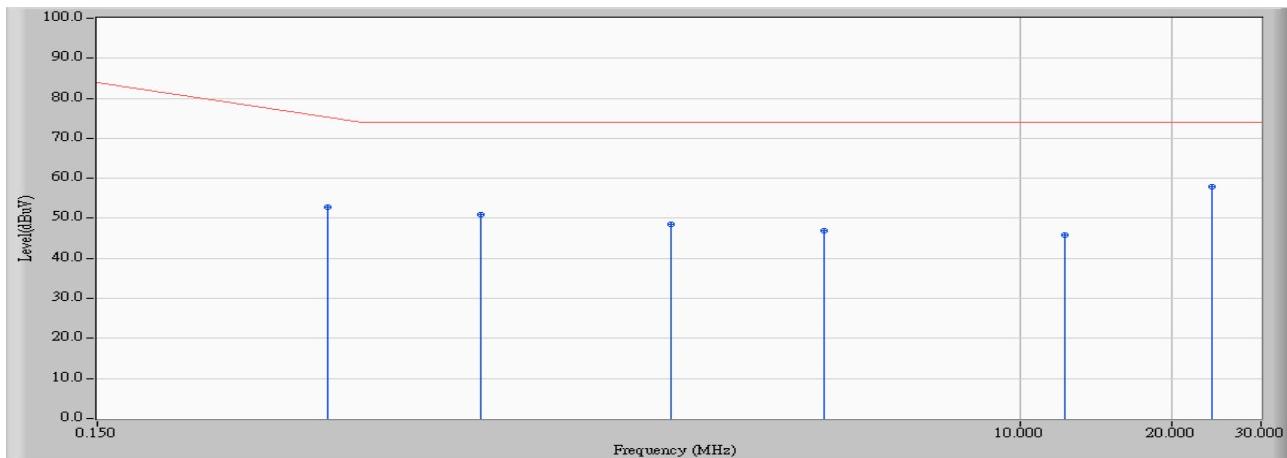
No deviation.

#### 4.6. Test Result

Site : SR-1	Time : 2008/08/18 - 10:24
Limit : ISN_Voltage_B_00M_QP	Margin : 10
EUT : Notebook	Probe : ISN-T2 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN Telecom



Site : SR-1	Time : 2008/08/18 - 10:25
Limit : ISN_Voltage_B_00M_QP	Margin : 0
EUT : Notebook	Probe : ISN-T2 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN Telecom

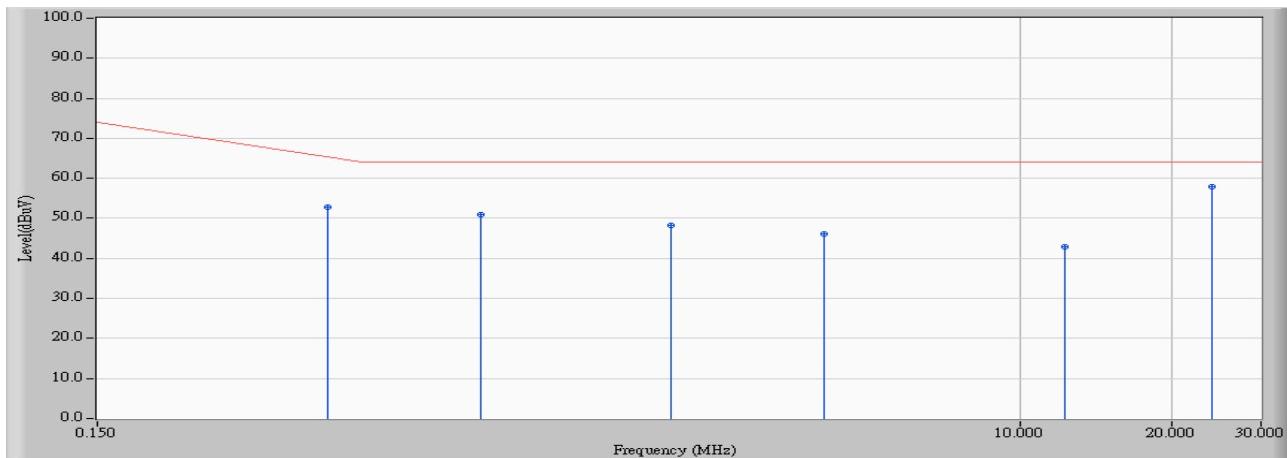


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type	
1	0.427	9.967	42.790	52.757	-23.329	76.086	QUASIPEAK	
2	0.857	9.940	40.930	50.870	-23.130	74.000	QUASIPEAK	
3	2.048	9.920	38.690	48.610	-25.390	74.000	QUASIPEAK	
4	4.095	9.910	37.080	46.990	-27.010	74.000	QUASIPEAK	
5	12.252	9.970	35.800	45.770	-28.230	74.000	QUASIPEAK	
6	*	24.002	10.040	47.960	58.000	-16.000	74.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 10:25
Limit : ISN_Voltage_B_00M_AV	Margin : 0
EUT : Notebook	Probe : ISN-T2 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN Telecom

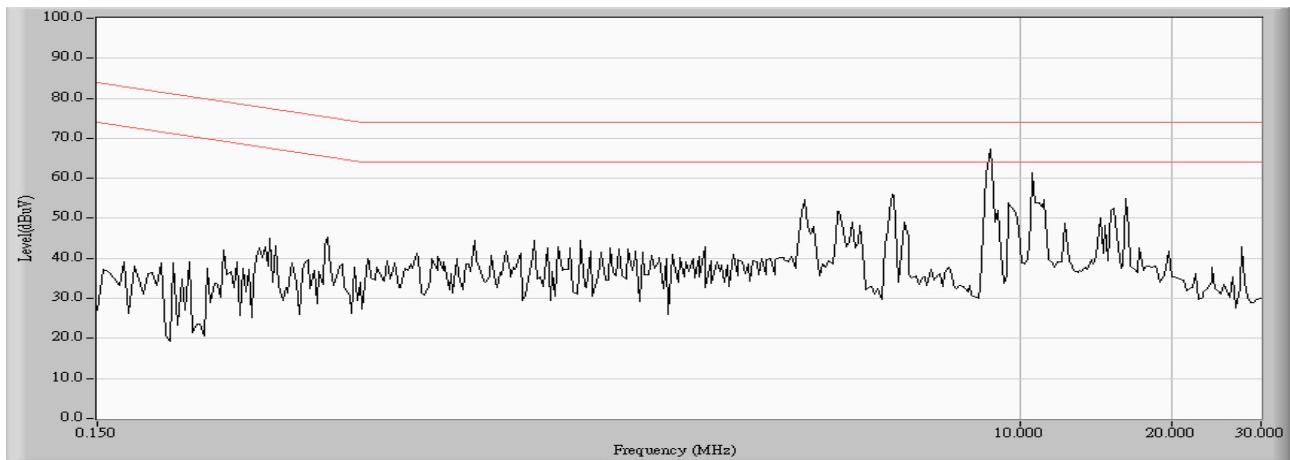


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type	
1	0.427	9.967	42.780	52.747	-13.339	66.086	AVERAGE	
2	0.857	9.940	40.920	50.860	-13.140	64.000	AVERAGE	
3	2.048	9.920	38.380	48.300	-15.700	64.000	AVERAGE	
4	4.095	9.910	36.210	46.120	-17.880	64.000	AVERAGE	
5	12.252	9.970	32.870	42.840	-21.160	64.000	AVERAGE	
6	*	24.002	10.040	47.950	57.990	-6.010	64.000	AVERAGE

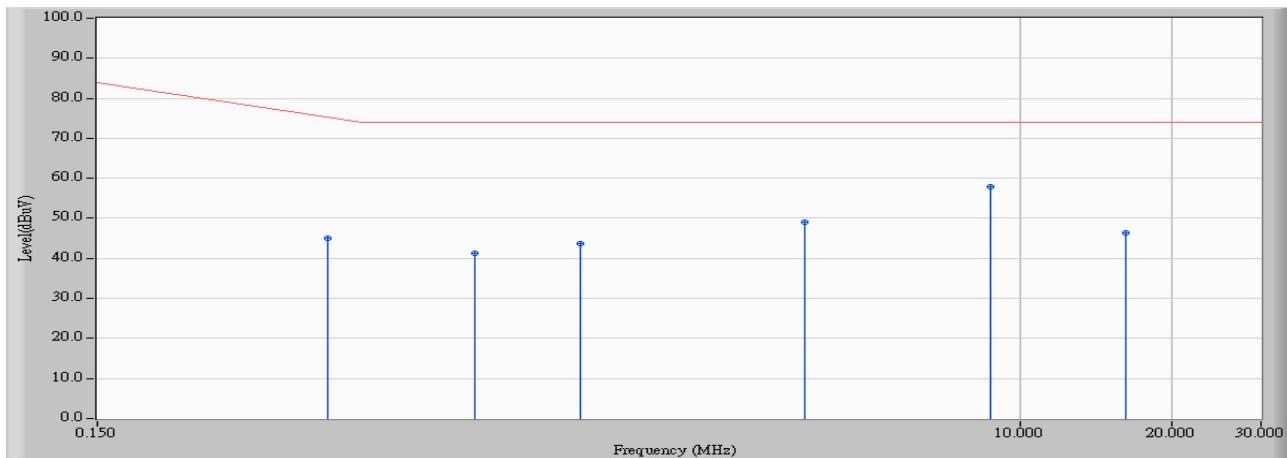
#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 10:11
Limit : ISN_Voltage_B_00M_QP	Margin : 10
EUT : Notebook	Probe : ISN-T4 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 10Mbps



Site : SR-1	Time : 2008/08/18 - 10:13
Limit : ISN_Voltage_B_00M_QP	Margin : 0
EUT : Notebook	Probe : ISN-T4 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 10Mbps

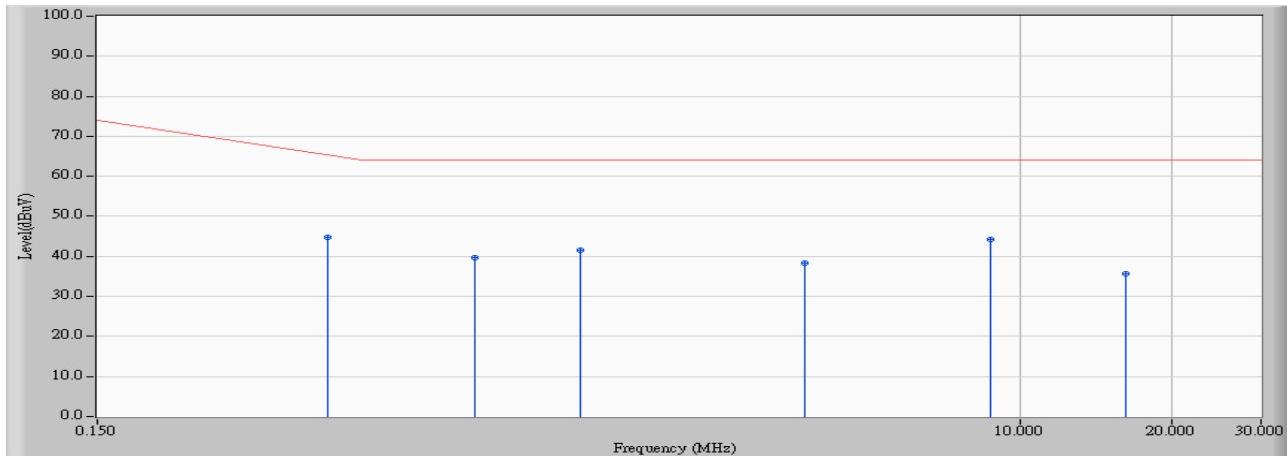


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.427	9.910	35.100	45.010	-31.076	76.086	QUASIPEAK
2	0.838	9.900	31.280	41.180	-32.820	74.000	QUASIPEAK
3	1.353	9.900	33.810	43.710	-30.290	74.000	QUASIPEAK
4	3.750	9.890	39.070	48.960	-25.040	74.000	QUASIPEAK
5 *	8.752	9.860	47.970	57.830	-16.170	74.000	QUASIPEAK
6	16.252	10.000	36.280	46.280	-27.720	74.000	QUASIPEAK

#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 10:13
Limit : ISN_Voltage_B_00M_AV	Margin : 0
EUT : Notebook	Probe : ISN-T4 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 10Mbps

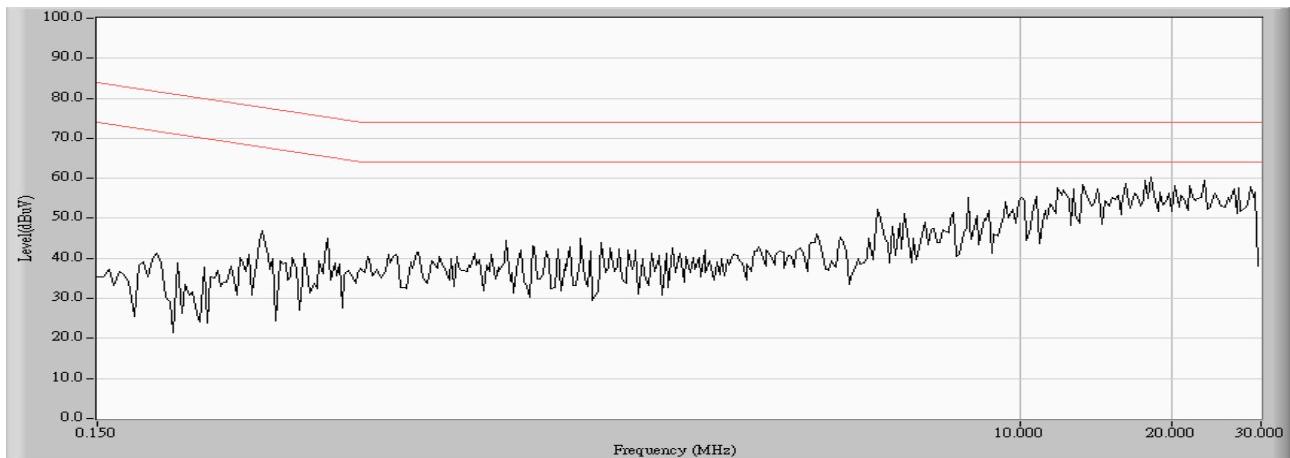


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.427	9.910	34.930	44.840	-21.246	66.086	AVERAGE
2	0.838	9.900	29.660	39.560	-24.440	64.000	AVERAGE
3	1.353	9.900	31.660	41.560	-22.440	64.000	AVERAGE
4	3.750	9.890	28.370	38.260	-25.740	64.000	AVERAGE
5 *	8.752	9.860	34.480	44.340	-19.660	64.000	AVERAGE
6	16.252	10.000	25.670	35.670	-28.330	64.000	AVERAGE

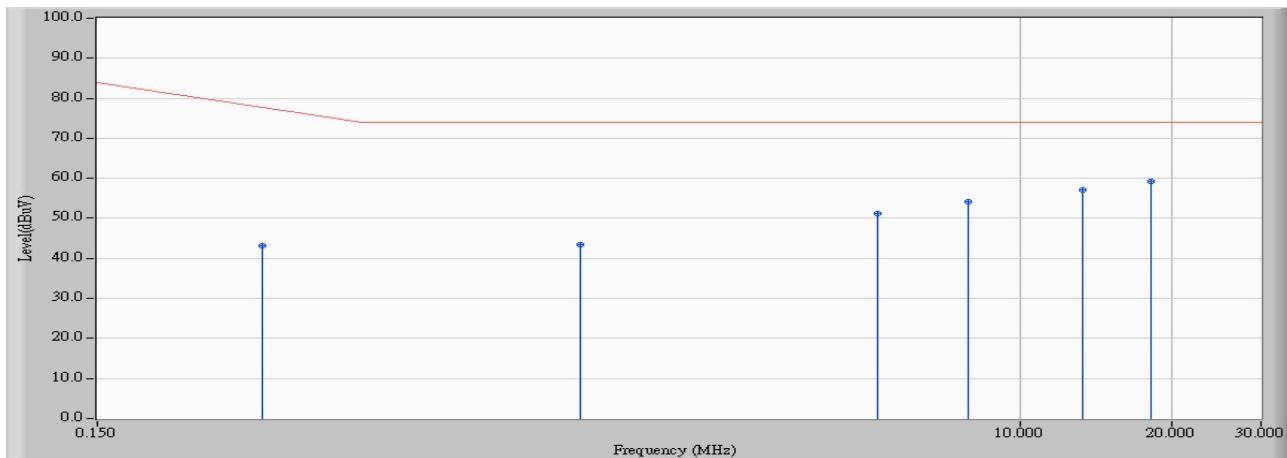
#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 10:15
Limit : ISN_Voltage_B_00M_QP	Margin : 10
EUT : Notebook	Probe : ISN-T4 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 100Mbps



Site : SR-1	Time : 2008/08/18 - 10:16
Limit : ISN_Voltage_B_00M_QP	Margin : 0
EUT : Notebook	Probe : ISN-T4 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 100Mbps

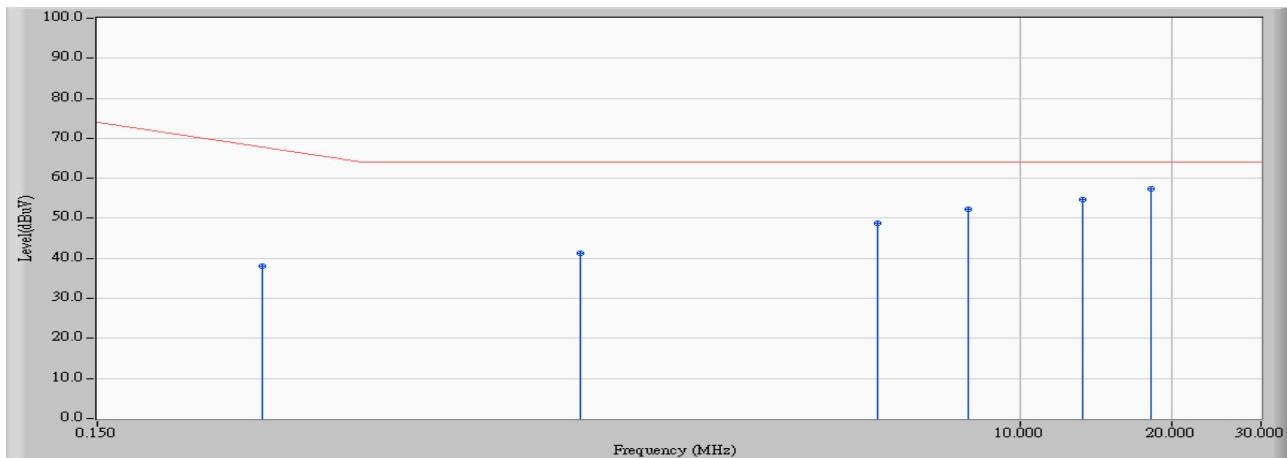


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.318	9.930	33.160	43.090	-36.110	79.200	QUASIPEAK
2	1.353	9.900	33.590	43.490	-30.510	74.000	QUASIPEAK
3	5.236	9.880	41.200	51.080	-22.920	74.000	QUASIPEAK
4	7.923	9.860	44.390	54.250	-19.750	74.000	QUASIPEAK
5	13.357	10.020	47.080	57.100	-16.900	74.000	QUASIPEAK
6	*	9.990	49.270	59.260	-14.740	74.000	QUASIPEAK

#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 10:16
Limit : ISN_Voltage_B_00M_AV	Margin : 0
EUT : Notebook	Probe : ISN-T4 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 100Mbps

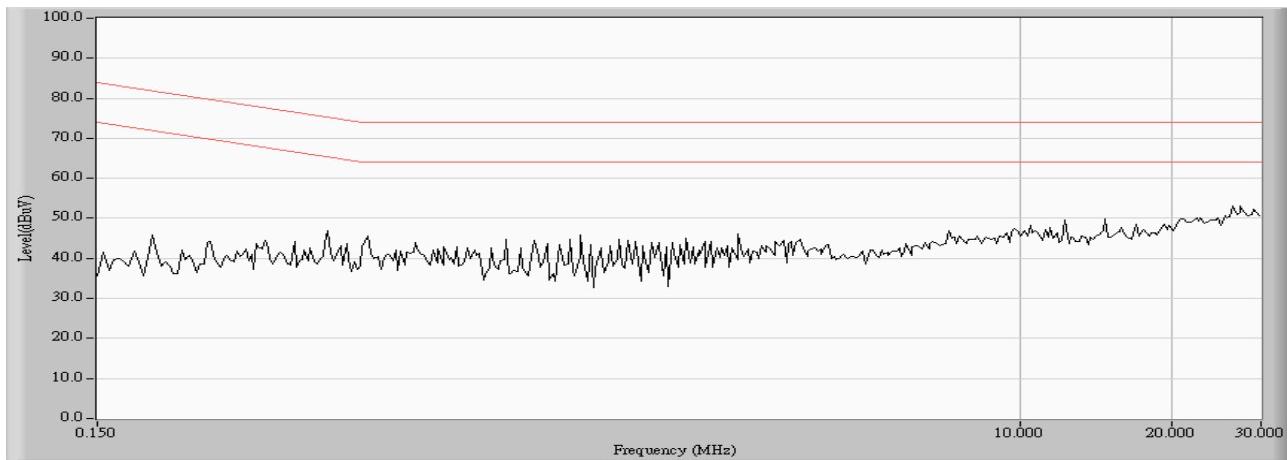


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.318	9.930	28.080	38.010	-31.190	69.200	AVERAGE
2	1.353	9.900	31.510	41.410	-22.590	64.000	AVERAGE
3	5.236	9.880	38.810	48.690	-15.310	64.000	AVERAGE
4	7.923	9.860	42.490	52.350	-11.650	64.000	AVERAGE
5	13.357	10.020	44.620	54.640	-9.360	64.000	AVERAGE
6	*	9.990	47.360	57.350	-6.650	64.000	AVERAGE

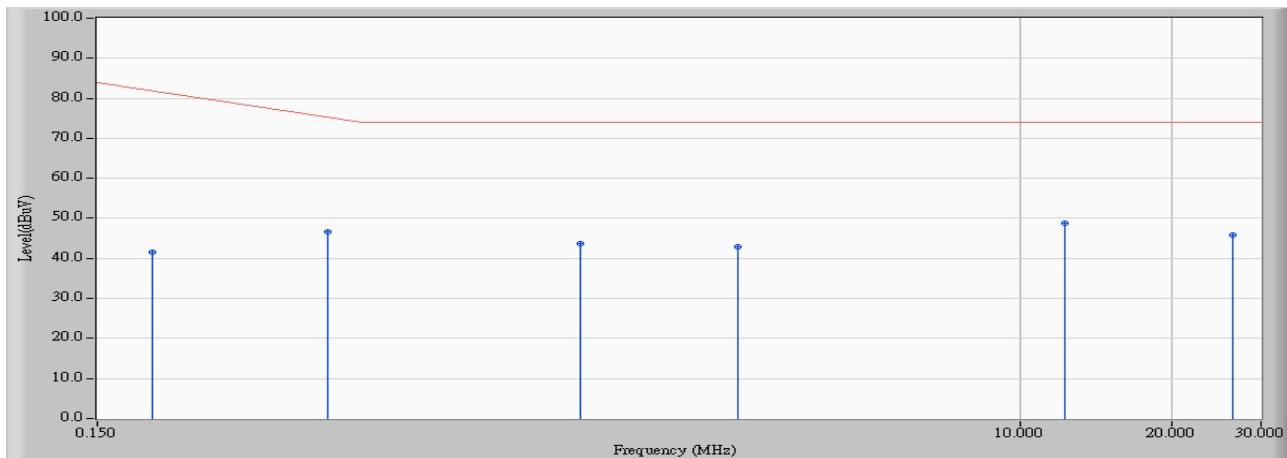
#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 10:18
Limit : ISN_Voltage_B_00M_QP	Margin : 10
EUT : Notebook	Probe : ISN-T8 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 1G



Site : SR-1	Time : 2008/08/18 - 10:20
Limit : ISN_Voltage_B_00M_QP	Margin : 0
EUT : Notebook	Probe : ISN-T8 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 1G

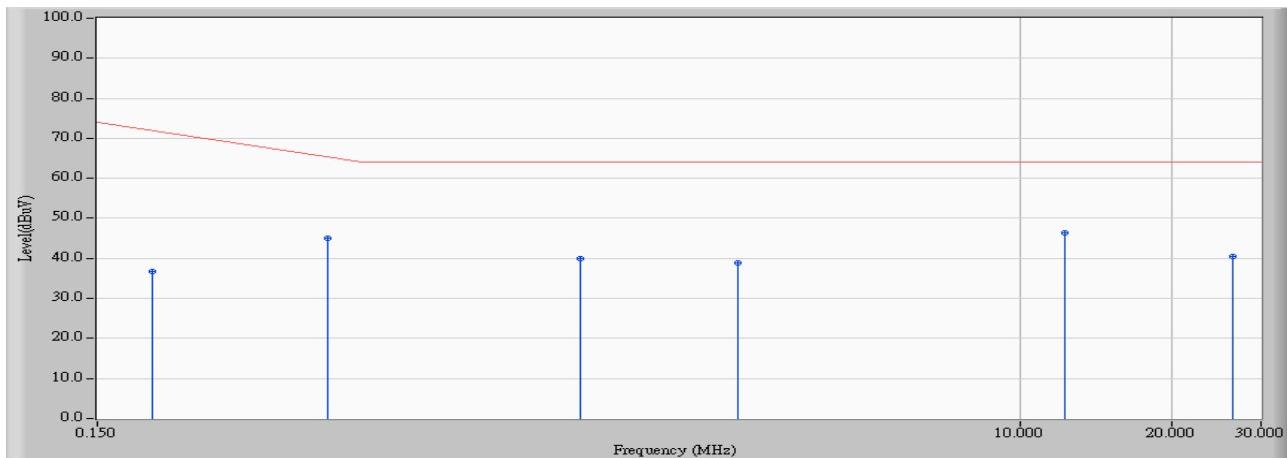


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.193	10.186	31.490	41.676	-41.095	82.771	QUASIPEAK
2	0.427	10.117	36.410	46.527	-29.559	76.086	QUASIPEAK
3	1.357	10.040	33.650	43.690	-30.310	74.000	QUASIPEAK
4	2.767	10.000	32.890	42.890	-31.110	74.000	QUASIPEAK
5 *	12.248	10.090	38.810	48.900	-25.100	74.000	QUASIPEAK
6	26.466	10.070	35.740	45.810	-28.190	74.000	QUASIPEAK

#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 10:20
Limit : ISN_Voltage_B_00M_AV	Margin : 0
EUT : Notebook	Probe : ISN-T8 - Line1
Power : AC 230V/50Hz	Note : Mode 1, ISN 1G

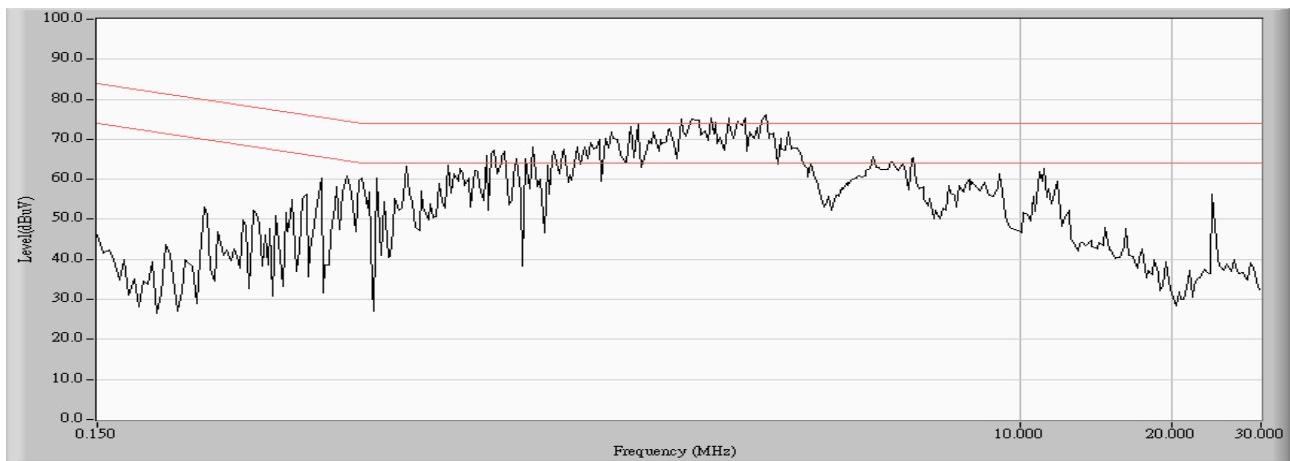


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.193	10.186	26.500	36.686	-36.085	72.771	AVERAGE
2	0.427	10.117	34.830	44.947	-21.139	66.086	AVERAGE
3	1.357	10.040	30.000	40.040	-23.960	64.000	AVERAGE
4	2.767	10.000	28.750	38.750	-25.250	64.000	AVERAGE
5 *	12.248	10.090	36.370	46.460	-17.540	64.000	AVERAGE
6	26.466	10.070	30.480	40.550	-23.450	64.000	AVERAGE

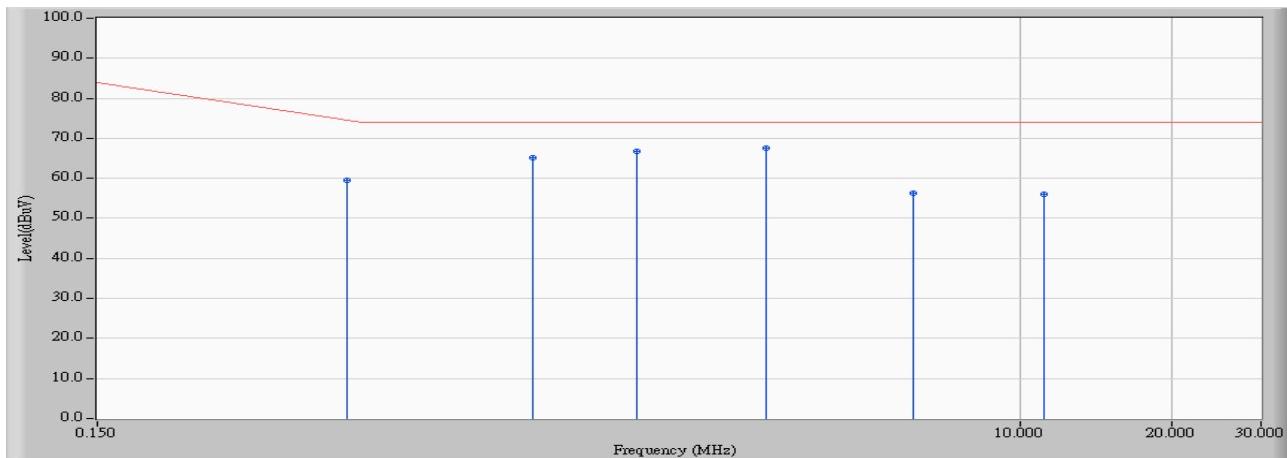
#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 11:48
Limit : ISN_Voltage_B_00M_QP	Margin : 10
EUT : Notebook	Probe : ISN-T2 - Line1
Power : AC 230V/50Hz	Note : Mode 2, ISN Telecom



Site : SR-1	Time : 2008/08/18 - 11:49
Limit : ISN_Voltage_B_00M_QP	Margin : 0
EUT : Notebook	Probe : ISN-T2 - Line1
Power : AC 230V/50Hz	Note : Mode 2, ISN Telecom

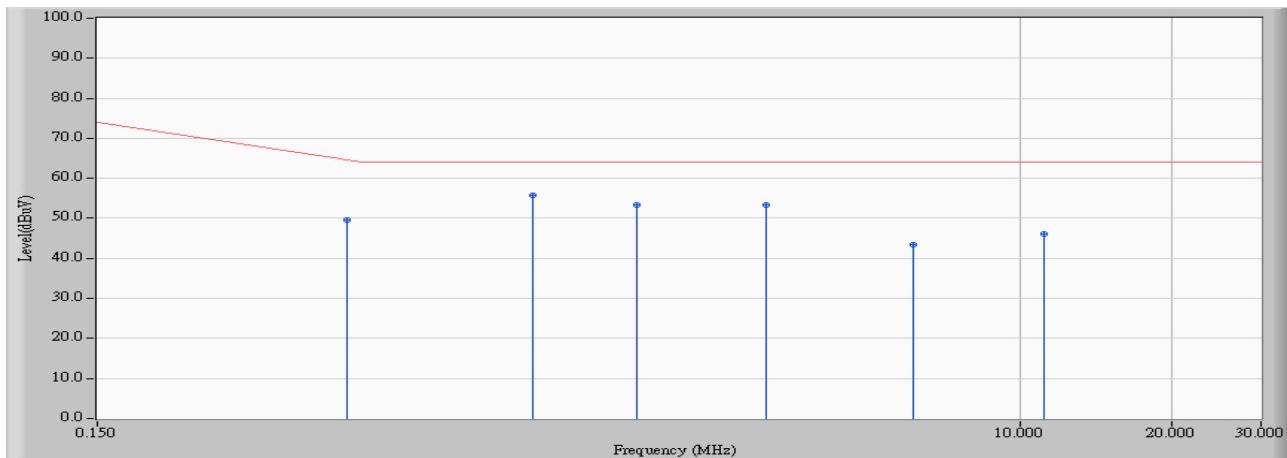


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.466	9.954	49.540	59.494	-15.477	74.971	QUASIPEAK
2	1.087	9.930	55.190	65.120	-8.880	74.000	QUASIPEAK
3	1.755	9.920	56.760	66.680	-7.320	74.000	QUASIPEAK
4 *	3.146	9.910	57.690	67.600	-6.400	74.000	QUASIPEAK
5	6.166	9.900	46.390	56.290	-17.710	74.000	QUASIPEAK
6	11.197	9.884	46.090	55.974	-18.026	74.000	QUASIPEAK

#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 11:49
Limit : ISN_Voltage_B_00M_AV	Margin : 0
EUT : Notebook	Probe : ISN-T2 - Line1
Power : AC 230V/50Hz	Note : Mode 2, ISN Telecom

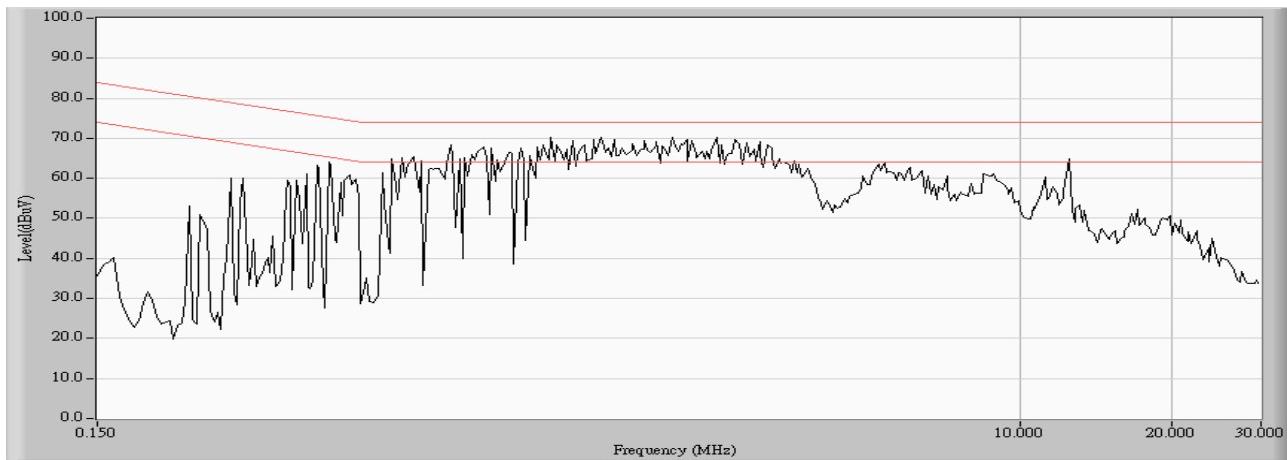


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.466	9.954	39.700	49.654	-15.317	64.971	AVERAGE
2	*	1.087	9.930	45.760	55.690	-8.310	64.000	AVERAGE
3		1.755	9.920	43.420	53.340	-10.660	64.000	AVERAGE
4		3.146	9.910	43.360	53.270	-10.730	64.000	AVERAGE
5		6.166	9.900	33.410	43.310	-20.690	64.000	AVERAGE
6		11.197	9.884	36.340	46.224	-17.776	64.000	AVERAGE

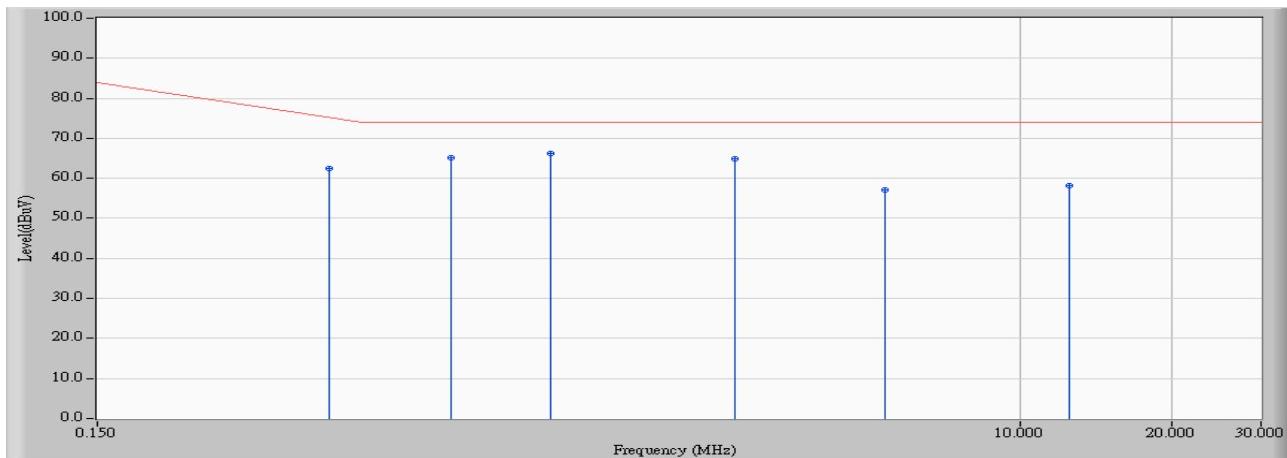
#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 11:46
Limit : ISN_Voltage_B_00M_QP	Margin : 10
EUT : Notebook	Probe : ISN-T4 - Line1
Power : AC 230V/50Hz	Note : Mode 2, ISN 10Mbps



Site : SR-1	Time : 2008/08/18 - 11:47
Limit : ISN_Voltage_B_00M_QP	Margin : 0
EUT : Notebook	Probe : ISN-T4 - Line1
Power : AC 230V/50Hz	Note : Mode 2, ISN 10Mbps

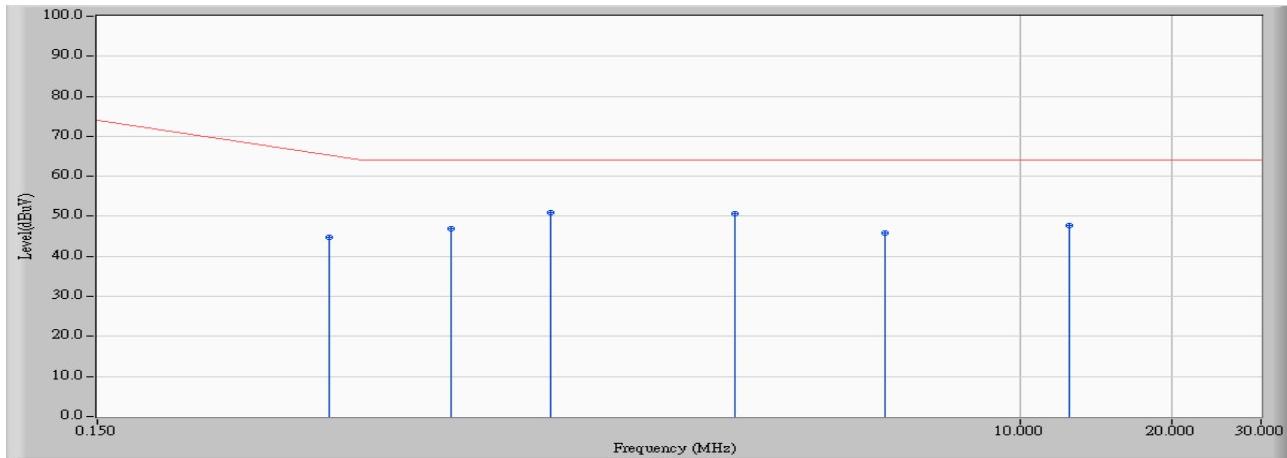


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.431	9.910	52.470	62.380	-13.591	75.971	QUASIPEAK
2	0.752	9.900	55.160	65.060	-8.940	74.000	QUASIPEAK
3 *	1.185	9.900	56.220	66.120	-7.880	74.000	QUASIPEAK
4	2.732	9.900	55.010	64.910	-9.090	74.000	QUASIPEAK
5	5.408	9.880	47.250	57.130	-16.870	74.000	QUASIPEAK
6	12.502	9.953	48.210	58.163	-15.837	74.000	QUASIPEAK

#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 11:47
Limit : ISN_Voltage_B_00M_AV	Margin : 0
EUT : Notebook	Probe : ISN-T4 - Line1
Power : AC 230V/50Hz	Note : Mode 2, ISN 10Mbps

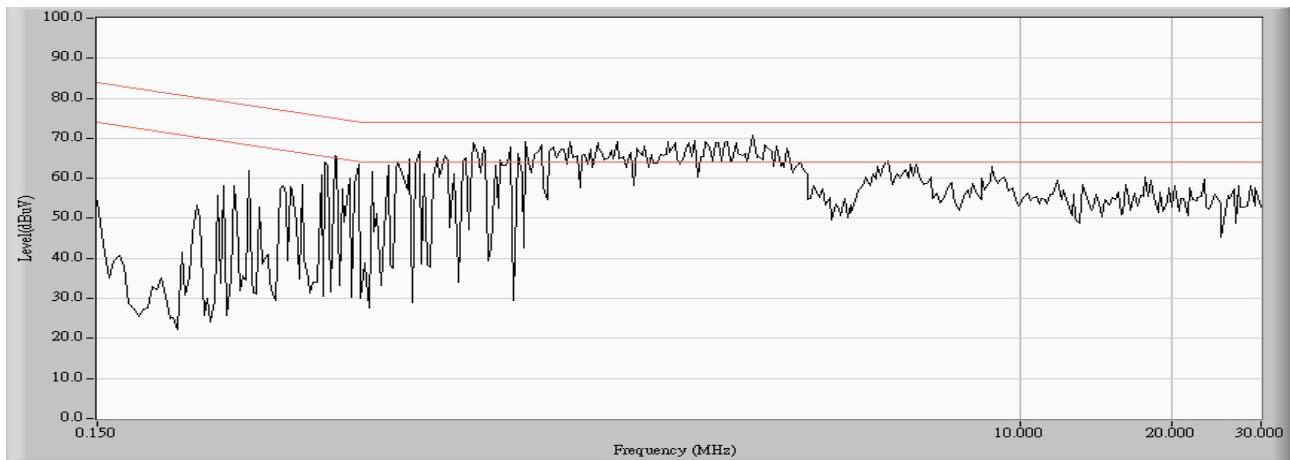


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.431	9.910	34.980	44.890	-21.081	65.971	AVERAGE
2	0.752	9.900	36.900	46.800	-17.200	64.000	AVERAGE
3 *	1.185	9.900	41.040	50.940	-13.060	64.000	AVERAGE
4	2.732	9.900	40.710	50.610	-13.390	64.000	AVERAGE
5	5.408	9.880	36.090	45.970	-18.030	64.000	AVERAGE
6	12.502	9.953	37.750	47.703	-16.297	64.000	AVERAGE

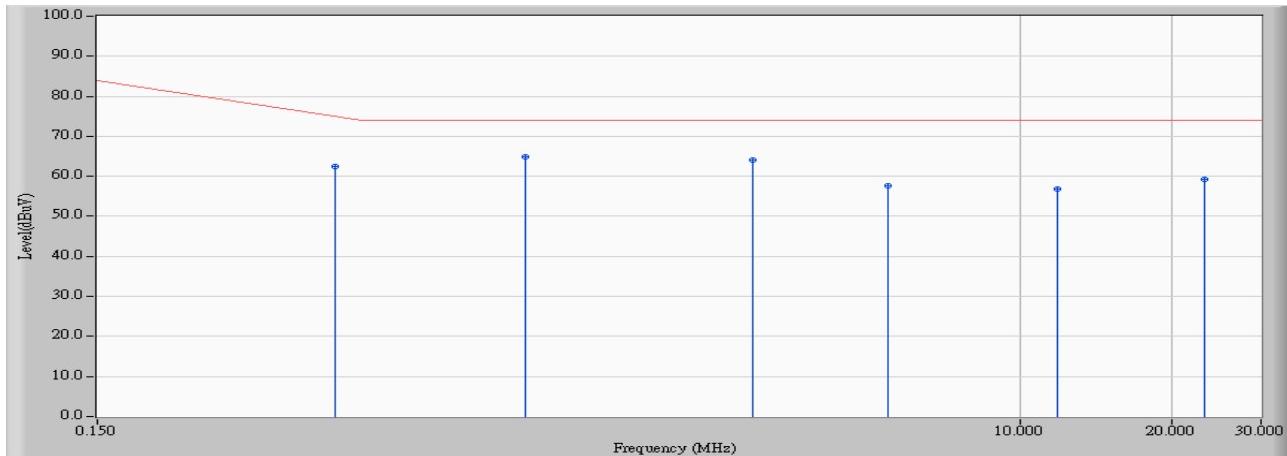
#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 11:44
Limit : ISN_Voltage_B_00M_QP	Margin : 10
EUT : Notebook	Probe : ISN-T4 - Line1
Power : AC 230V/50Hz	Note : Mode 2, ISN 100Mbps



Site : SR-1	Time : 2008/08/18 - 11:45
Limit : ISN_Voltage_B_00M_QP	Margin : 0
EUT : Notebook	Probe : ISN-T4 - Line1
Power : AC 230V/50Hz	Note : Mode 2, ISN 100Mbps

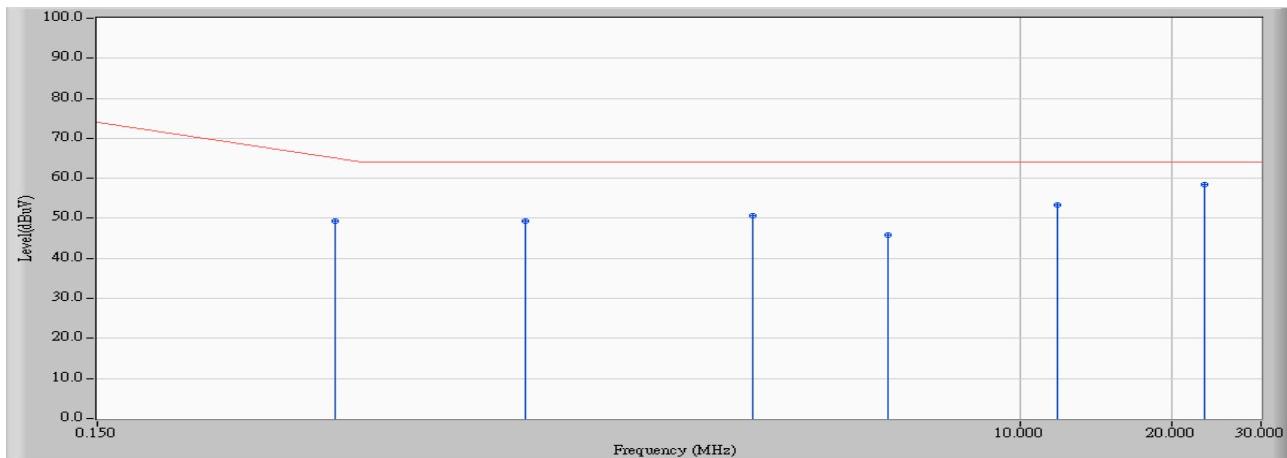


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.443	9.910	52.500	62.410	-13.219	75.629	QUASIPEAK
2	*	1.052	9.900	55.030	64.930	-9.070	74.000	QUASIPEAK
3		2.959	9.900	54.150	64.050	-9.950	74.000	QUASIPEAK
4		5.498	9.880	47.740	57.620	-16.380	74.000	QUASIPEAK
5		11.892	9.898	46.810	56.708	-17.292	74.000	QUASIPEAK
6		23.127	9.970	49.210	59.180	-14.820	74.000	QUASIPEAK

#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 11:45
Limit : ISN_Voltage_B_00M_AV	Margin : 0
EUT : Notebook	Probe : ISN-T4 - Line1
Power : AC 230V/50Hz	Note : Mode 2, ISN 100Mbps

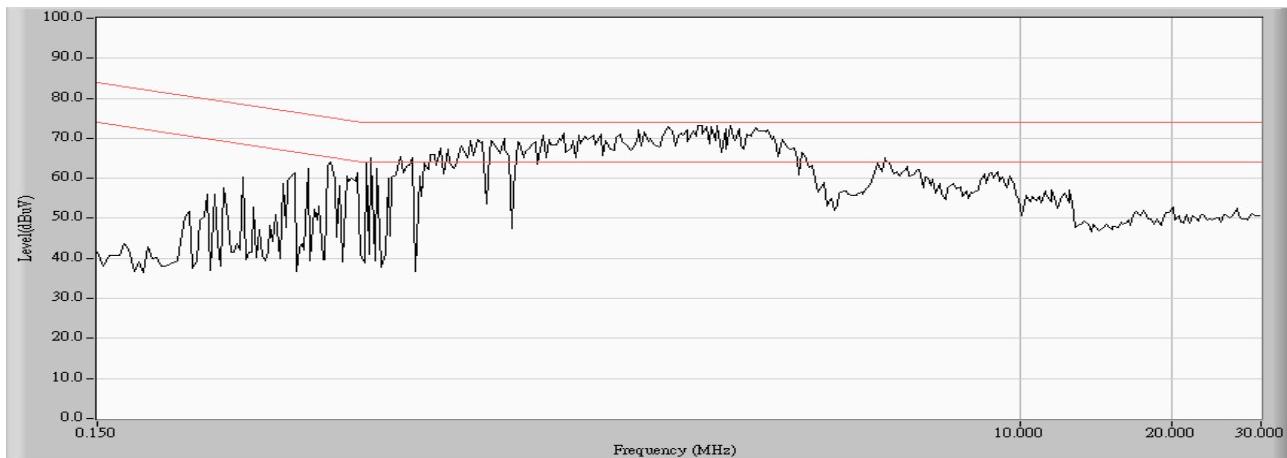


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.443	9.910	39.480	49.390	-16.239	65.629	AVERAGE
2		1.052	9.900	39.360	49.260	-14.740	64.000	AVERAGE
3		2.959	9.900	40.800	50.700	-13.300	64.000	AVERAGE
4		5.498	9.880	36.070	45.950	-18.050	64.000	AVERAGE
5		11.892	9.898	43.430	53.328	-10.672	64.000	AVERAGE
6	*	23.127	9.970	48.460	58.430	-5.570	64.000	AVERAGE

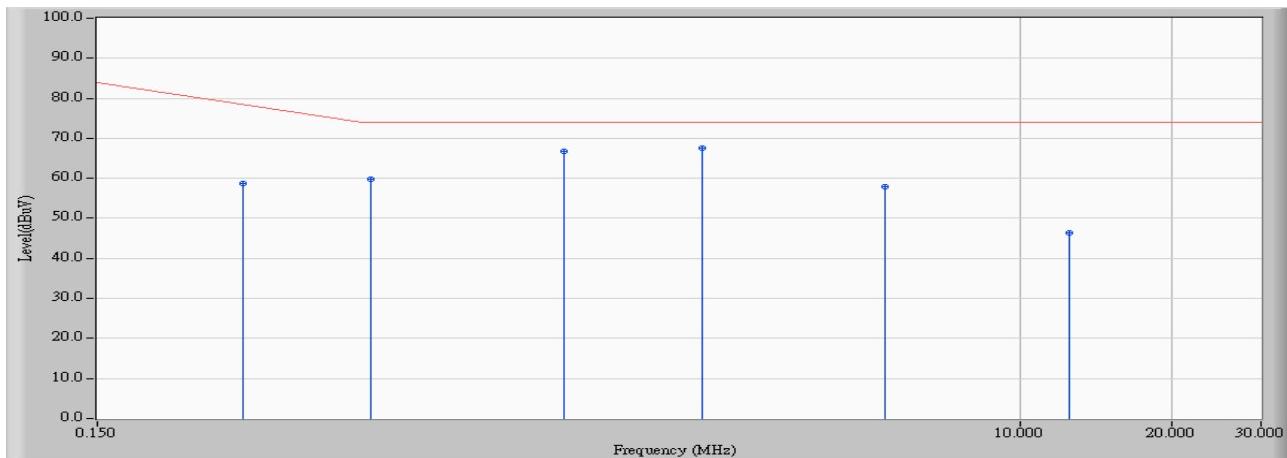
#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 11:42
Limit : ISN_Voltage_B_00M_QP	Margin : 10
EUT : Notebook	Probe : ISN-T8 - Line1
Power : AC 230V/50Hz	Note : Mode 2, ISN 1G



Site : SR-1	Time : 2008/08/18 - 11:43
Limit : ISN_Voltage_B_00M_QP	Margin : 0
EUT : Notebook	Probe : ISN-T8 - Line1
Power : AC 230V/50Hz	Note : Mode 2, ISN 1G

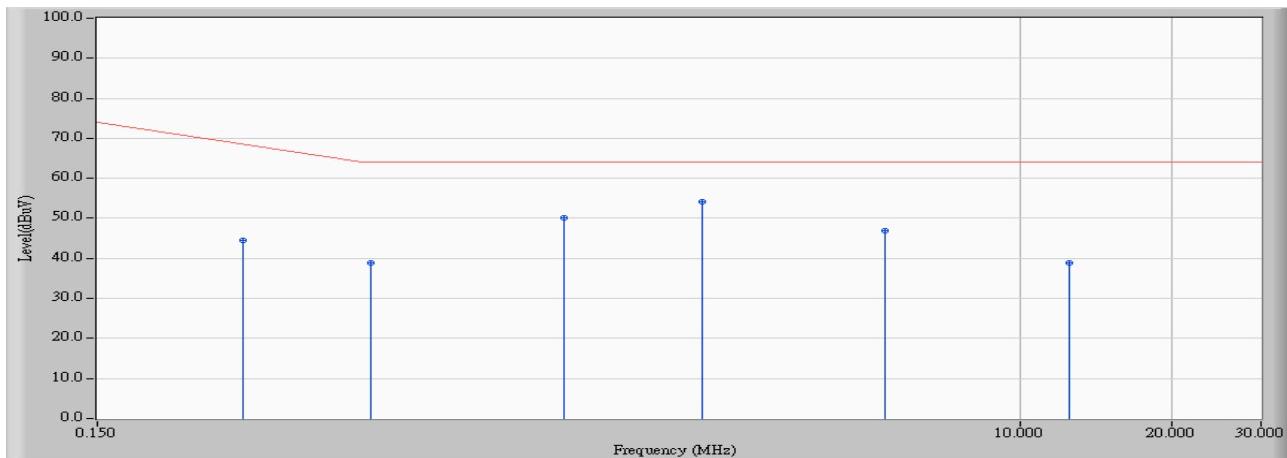


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.291	10.153	48.650	58.803	-21.168	79.971	QUASIPEAK
2	0.521	10.100	49.680	59.780	-14.220	74.000	QUASIPEAK
3	1.259	10.050	56.820	66.870	-7.130	74.000	QUASIPEAK
4 *	2.357	10.010	57.480	67.490	-6.510	74.000	QUASIPEAK
5	5.412	9.980	47.930	57.910	-16.090	74.000	QUASIPEAK
6	12.517	10.104	36.160	46.264	-27.736	74.000	QUASIPEAK

#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR-1	Time : 2008/08/18 - 11:43
Limit : ISN_Voltage_B_00M_AV	Margin : 0
EUT : Notebook	Probe : ISN-T8 - Line1
Power : AC 230V/50Hz	Note : Mode 2, ISN 1G



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.291	10.153	34.300	44.453	-25.518	69.971	AVERAGE
2	0.521	10.100	28.730	38.830	-25.170	64.000	AVERAGE
3	1.259	10.050	40.070	50.120	-13.880	64.000	AVERAGE
4 *	2.357	10.010	44.130	54.140	-9.860	64.000	AVERAGE
5	5.412	9.980	36.870	46.850	-17.150	64.000	AVERAGE
6	12.517	10.104	28.650	38.754	-25.246	64.000	AVERAGE

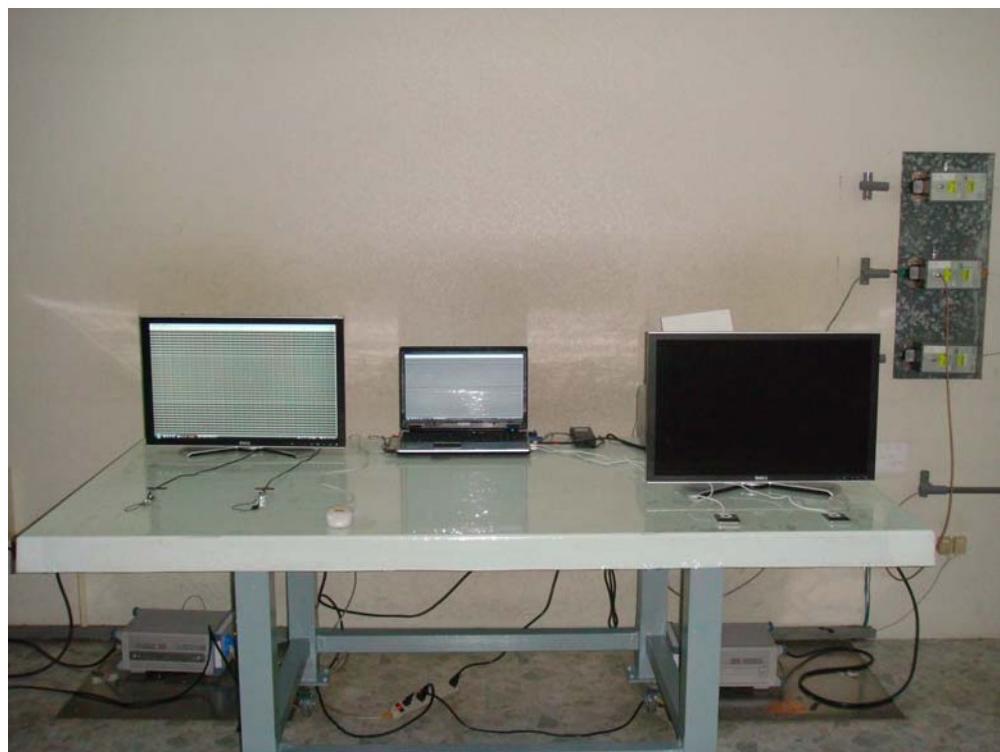
#### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

#### 4.7. Test Photograph

Test Mode : Mode 1

Description : Front View of ISN Test



Test Mode : Mode 1

Description : Back View of ISN Test



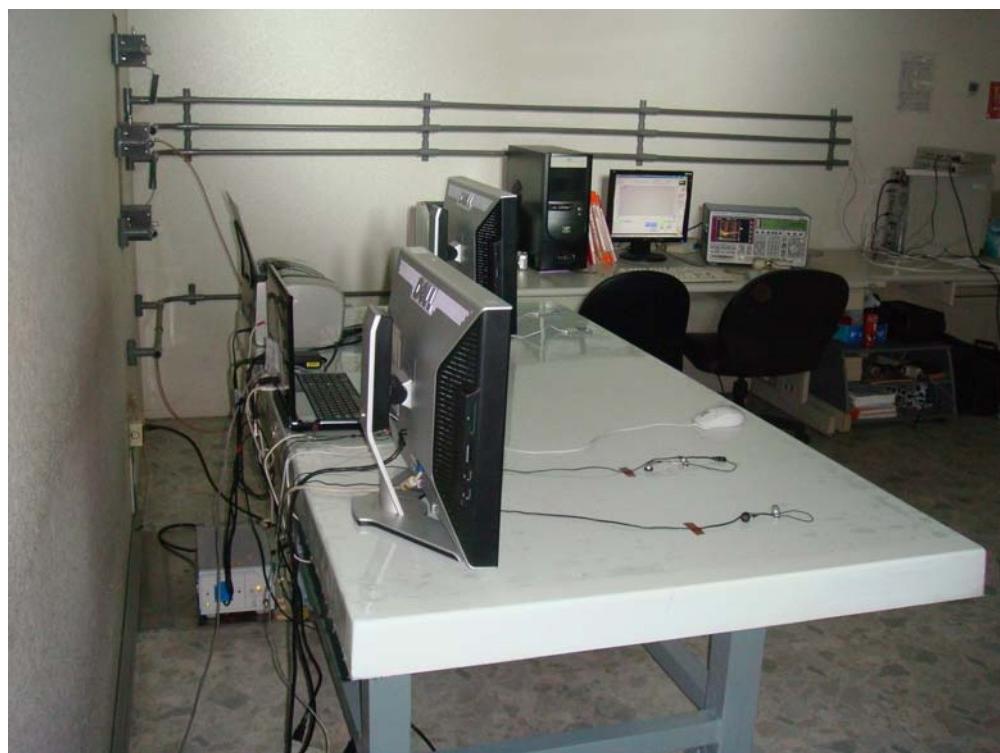
Test Mode : Mode 2

Description : Front View of ISN Test



Test Mode : Mode 2

Description : Back View of ISN Test

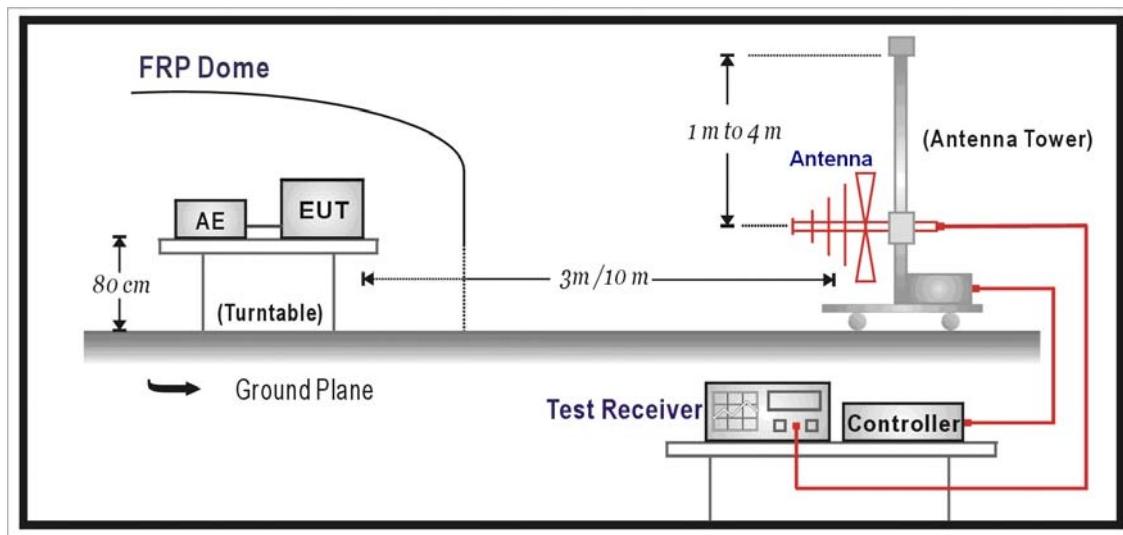


## 5. Radiated Emission

### 5.1. Test Specification

According to EMC Standard : EN 55022

### 5.2. Test Setup



### 5.3. Limit

Limits		
Frequency (MHz)	Distance (m)	dBuV/m
30 – 230	10	30
230 – 1000	10	37

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

#### **5.4. Test Procedure**

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 10 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.

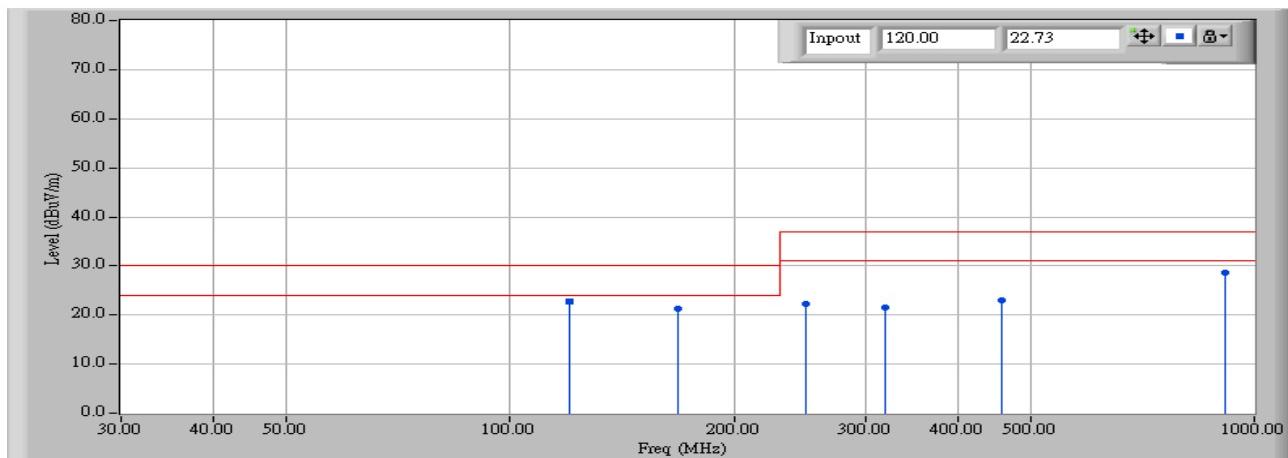
Radiated emissions were invested over the frequency range from 30MHz to1GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 10 meters.

#### **5.5. Deviation from Test Standard**

No deviation.

## 5.6. Test Result

Site : OATS-3	Time : 2008/08/20 - 05:25
Limit : CISPR_B_10M_QP	Margin : 6
EUT : Notebook	Probe : 2007_Site3(2921)_10M - HORIZONTAL
Power : AC 230V/50Hz	Note : Mode 1

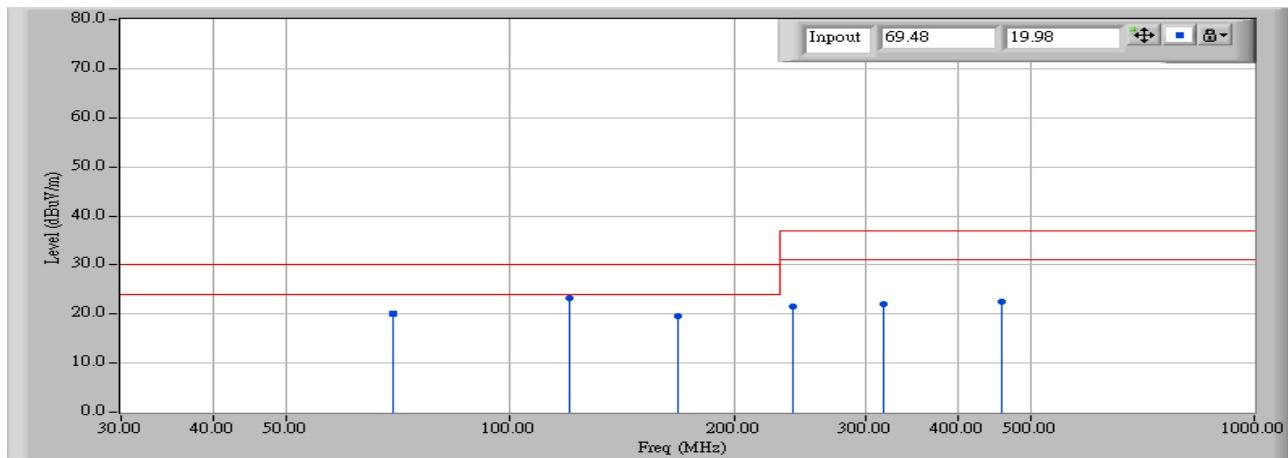


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	120.000	15.188	7.540	22.728	-7.272	30.000	QUASIPEAK
2		168.000	12.890	8.420	21.309	-8.691	30.000	QUASIPEAK
3		250.014	16.299	6.020	22.319	-14.681	37.000	QUASIPEAK
4		319.454	17.922	3.670	21.592	-15.408	37.000	QUASIPEAK
5		458.172	21.238	1.700	22.938	-14.062	37.000	QUASIPEAK
6		912.030	27.826	0.800	28.626	-8.374	37.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : OATS-3	Time : 2008/08/20 - 05:18
Limit : CISPR_B_10M_QP	Margin : 6
EUT : Notebook	Probe : 2007_Site3(2921)_10M - VERTICAL
Power : AC 230V/50Hz	Note : Mode 1

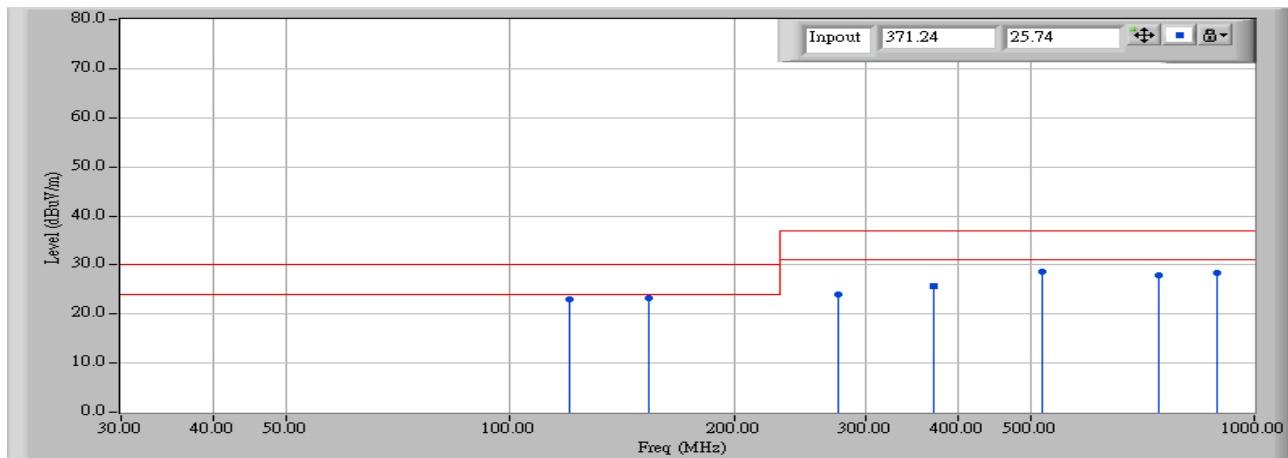


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	69.480	8.714	11.270	19.984	-10.016	30.000	QUASIPEAK
2 *	120.000	15.188	7.980	23.168	-6.832	30.000	QUASIPEAK
3	168.008	12.889	6.640	19.529	-10.471	30.000	QUASIPEAK
4	240.009	15.590	6.020	21.610	-15.390	37.000	QUASIPEAK
5	317.710	17.872	4.200	22.072	-14.928	37.000	QUASIPEAK
6	458.172	21.238	1.380	22.618	-14.382	37.000	QUASIPEAK

#### Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : OATS-3	Time : 2008/08/20 - 05:59
Limit : CISPR_B_10M_QP	Margin : 6
EUT : Notebook	Probe : 2007_Site3(2921)_10M - HORIZONTAL
Power : AC 230V/50Hz	Note : Mode 2

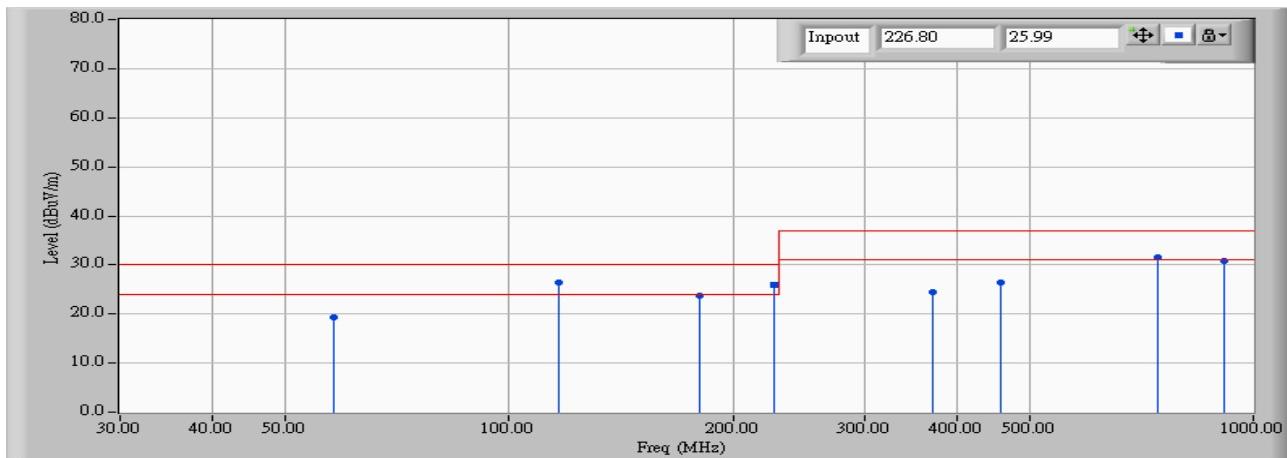


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	119.946	15.187	7.740	22.927	-7.073	30.000	QUASIPEAK
2 *	153.650	13.592	9.580	23.172	-6.828	30.000	QUASIPEAK
3	276.201	16.884	7.080	23.964	-13.036	37.000	QUASIPEAK
4	371.242	19.304	6.440	25.744	-11.256	37.000	QUASIPEAK
5	519.740	22.408	6.140	28.548	-8.452	37.000	QUASIPEAK
6	742.489	25.490	2.320	27.810	-9.190	37.000	QUASIPEAK
7	890.990	27.542	0.860	28.402	-8.598	37.000	QUASIPEAK

#### Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : OATS-3	Time : 2008/08/20 - 05:52
Limit : CISPR_B_10M_QP	Margin : 6
EUT : Notebook	Probe : 2007_Site3(2921)_10M - VERTICAL
Power : AC 230V/50Hz	Note : Mode 2



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	58.020	8.245	11.200	19.445	-10.555	30.000	QUASIPEAK
2 *	116.736	15.102	11.230	26.333	-3.667	30.000	QUASIPEAK
3	179.841	12.425	11.350	23.775	-6.225	30.000	QUASIPEAK
4	226.800	14.642	11.350	25.992	-4.008	30.000	QUASIPEAK
5	371.240	19.304	5.100	24.404	-12.596	37.000	QUASIPEAK
6	458.175	21.238	5.180	26.418	-10.582	37.000	QUASIPEAK
7	742.490	25.490	6.160	31.651	-5.349	37.000	QUASIPEAK
8	912.023	27.826	3.100	30.926	-6.074	37.000	QUASIPEAK

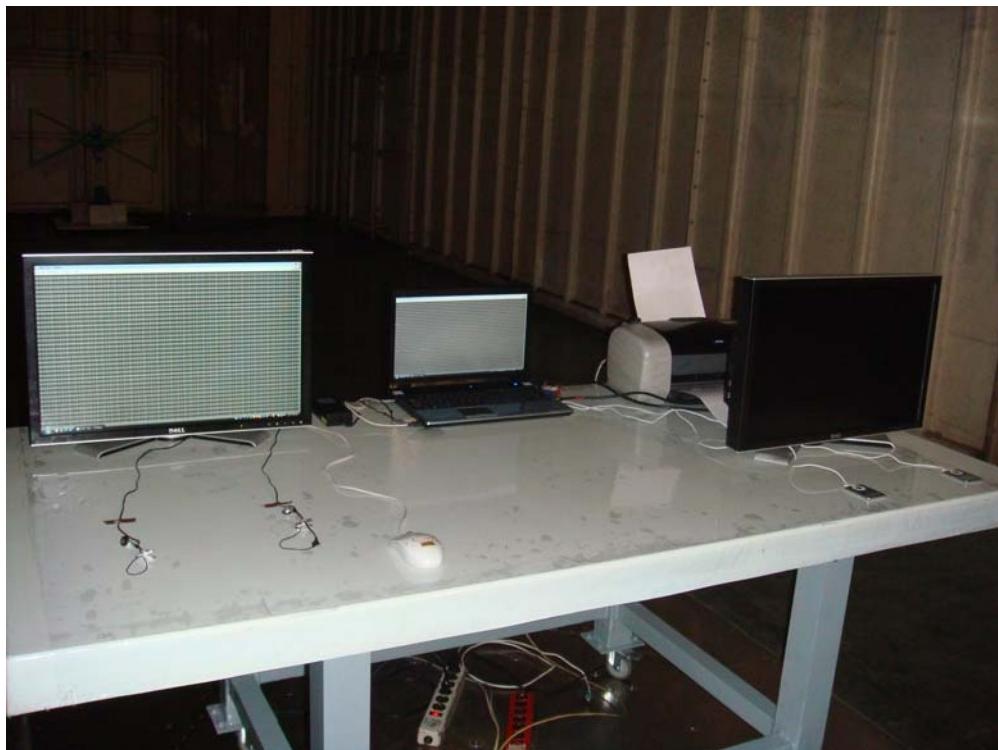
#### Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

## 5.7. Test Photograph

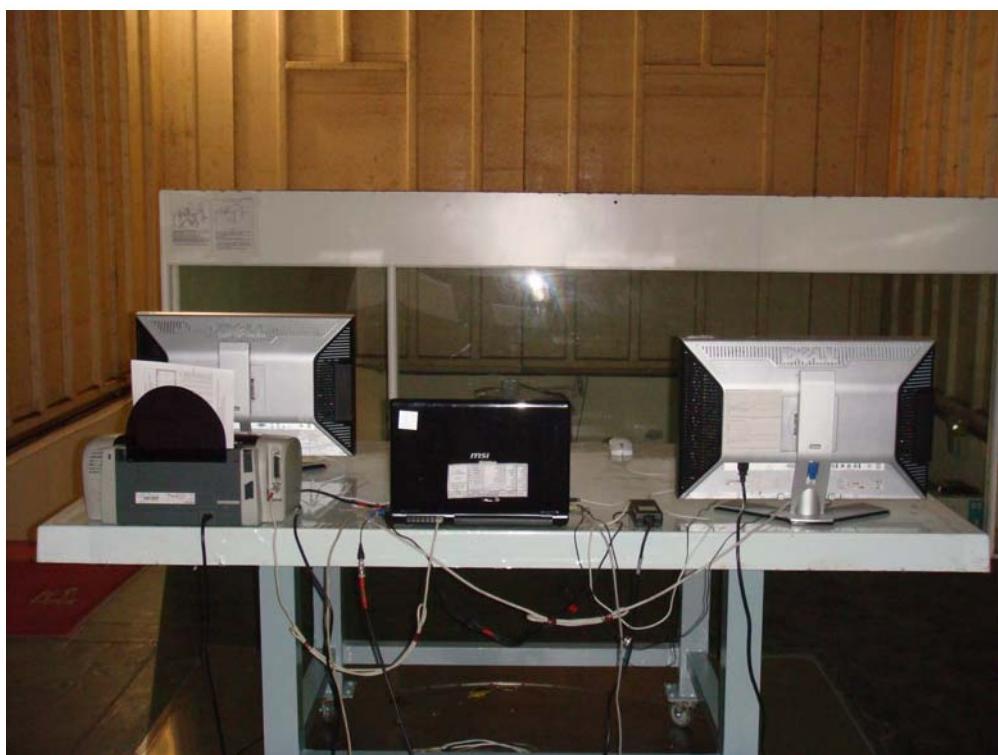
Test Mode : Mode 1

Description : Front View of Radiated Test



Test Mode : Mode 1

Description : Back View of Radiated Test



Test Mode : Mode 2

Description : Front View of Radiated Test



Test Mode : Mode 2

Description : Back View of Radiated Test

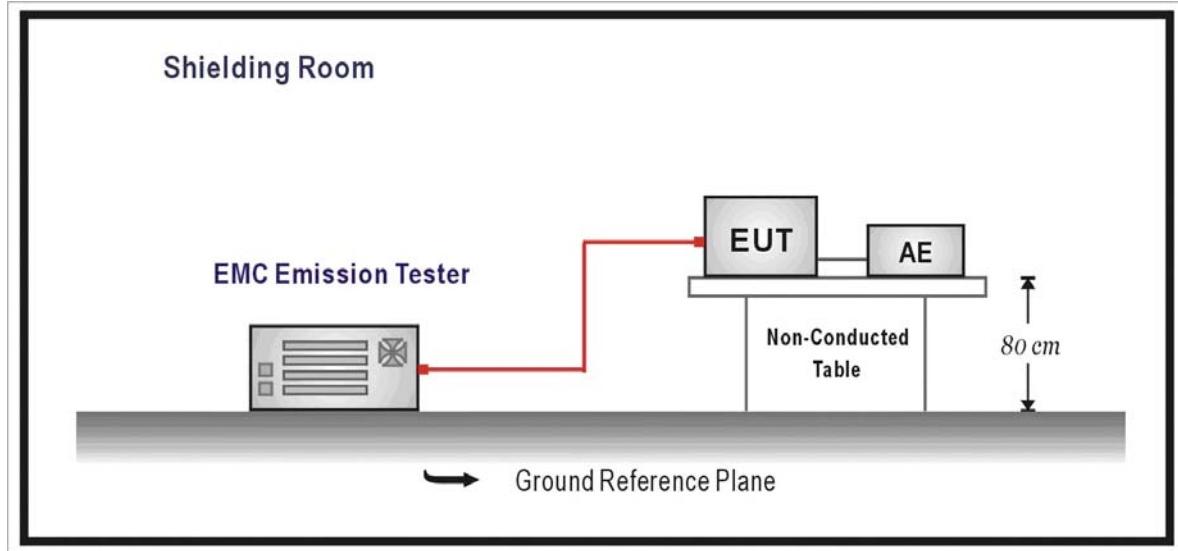


## 6. Harmonic Current Emission

### 6.1. Test Specification

According to EMC Standard : EN 61000-3-2

### 6.2. Test Setup



### 6.3. Limit

#### (a) Limits of Class A Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current A	Harmonics Order n	Maximum Permissible harmonic current A
Odd harmonics		Even harmonics	
3	2.30	2	1.08
5	1.14	4	0.43
7	0.77	6	0.30
9	0.40	$8 \leq n \leq 40$	$0.23 * 8/n$
11	0.33		
13	0.21		
$15 \leq n \leq 39$	$0.15 * 15/n$		

## (b) Limits of Class B Harmonics Currents

For Class B equipment, the harmonic of the input current shall not exceed the maximum permissible values given in table that is the limit of Class A multiplied by a factor of 1.5.

## (c) Limits of Class C Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current Expressed as a percentage of the input current at the fundamental frequency %
2	2
3	$30 \cdot \lambda^*$
5	10
7	7
9	5
$11 \leq n \leq 39$ (odd harmonics only)	3

\* $\lambda$  is the circuit power factor

## (d) Limits of Class D Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current per watt mA/W	Maximum Permissible harmonic current A
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
$11 \leq n \leq 39$ (odd harmonics only)	$3.85/n$	See limit of Class A

#### **6.4. Test Procedure**

The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

#### **6.5. Deviation from Test Standard**

No deviation.

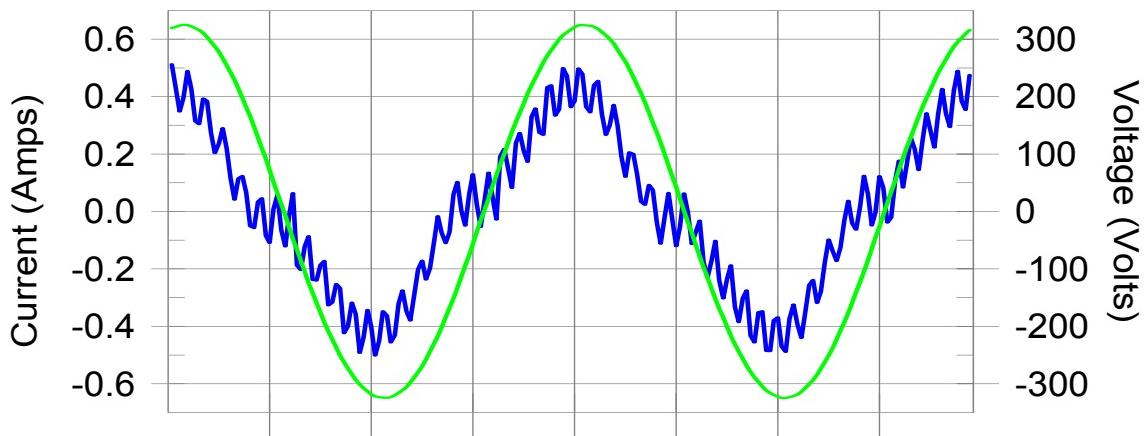
## 6.6. Test Result

Product	Notebook		
Test Item	Power Harmonics		
Test Mode	Mode 1		
Date of Test	2008/08/27	Test Site	No.3 Shielded Room

Test Result: Pass

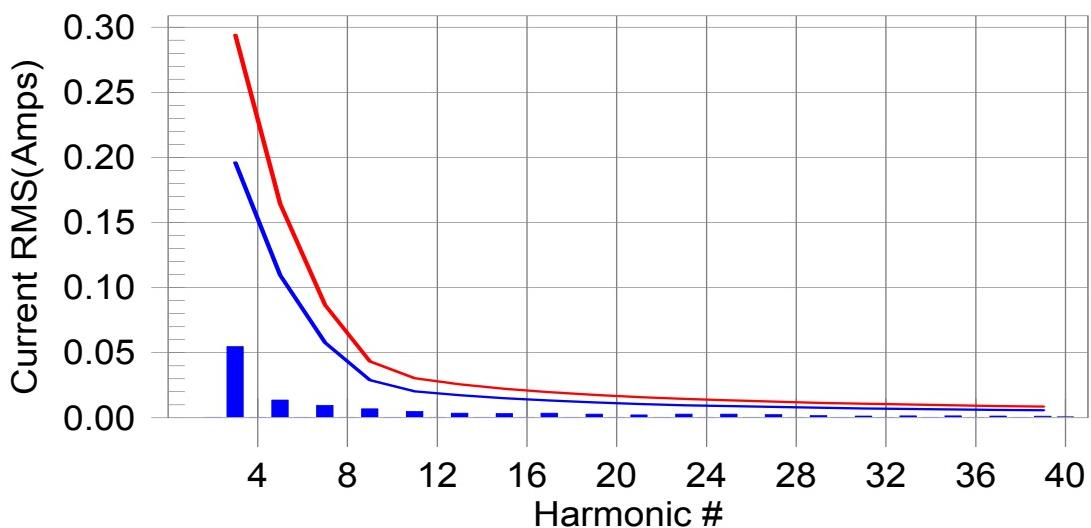
Source qualification: Normal

### Current & voltage waveforms



### Harmonics and Class D limit line

### European Limits



Test result: Pass

Worst harmonic was #0 with 0.00% of the limit.

Test Result: Pass      Source qualification: Normal  
 THC(A): 0.00      I-THD(%): 0.00      POHC(A): 0.000      POHC Limit(A): 0.000

Highest parameter values during test:

V_RMS (Volts):	229.74	Frequency(Hz):	50.00
I_Peak (Amps):	0.528	I_RMS (Amps):	0.271
I_Fund (Amps):	0.255	Crest Factor:	2.001
Power (Watts):	57.7	Power Factor:	0.927

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.000						
3	0.051	0.196	0.0	0.055	0.294	0.00	Pass
4	0.000						
5	0.013	0.110	0.0	0.014	0.164	0.00	Pass
6	0.000						
7	0.009	0.058	0.0	0.010	0.087	0.00	Pass
8	0.000						
9	0.006	0.029	0.0	0.007	0.043	0.00	Pass
10	0.000						
11	0.003	0.020	0.0	0.005	0.030	0.00	Pass
12	0.000						
13	0.002	0.017	0.0	0.003	0.026	0.00	Pass
14	0.000						
15	0.003	0.015	0.0	0.003	0.022	0.00	Pass
16	0.000						
17	0.003	0.013	0.0	0.003	0.020	0.00	Pass
18	0.000						
19	0.002	0.012	0.0	0.003	0.018	0.00	Pass
20	0.000						
21	0.002	0.011	0.0	0.002	0.016	0.00	Pass
22	0.000						
23	0.002	0.010	0.0	0.003	0.014	0.00	Pass
24	0.000						
25	0.002	0.009	0.0	0.003	0.013	0.00	Pass
26	0.000						
27	0.002	0.008	0.0	0.002	0.012	0.00	Pass
28	0.000						
29	0.002	0.008	0.0	0.002	0.011	0.00	Pass
30	0.000						
31	0.001	0.007	0.0	0.001	0.011	0.00	Pass
32	0.000						
33	0.001	0.007	0.0	0.001	0.010	0.00	Pass
34	0.000						
35	0.001	0.006	0.0	0.001	0.010	0.00	Pass
36	0.000						
37	0.001	0.006	0.0	0.001	0.009	0.00	Pass
38	0.000						
39	0.001	0.006	0.0	0.001	0.009	0.00	Pass
40	0.001						

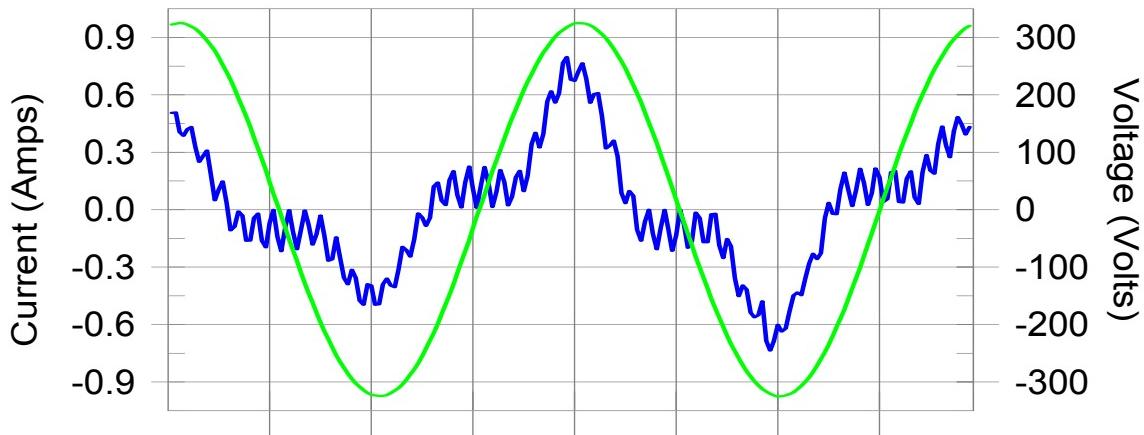
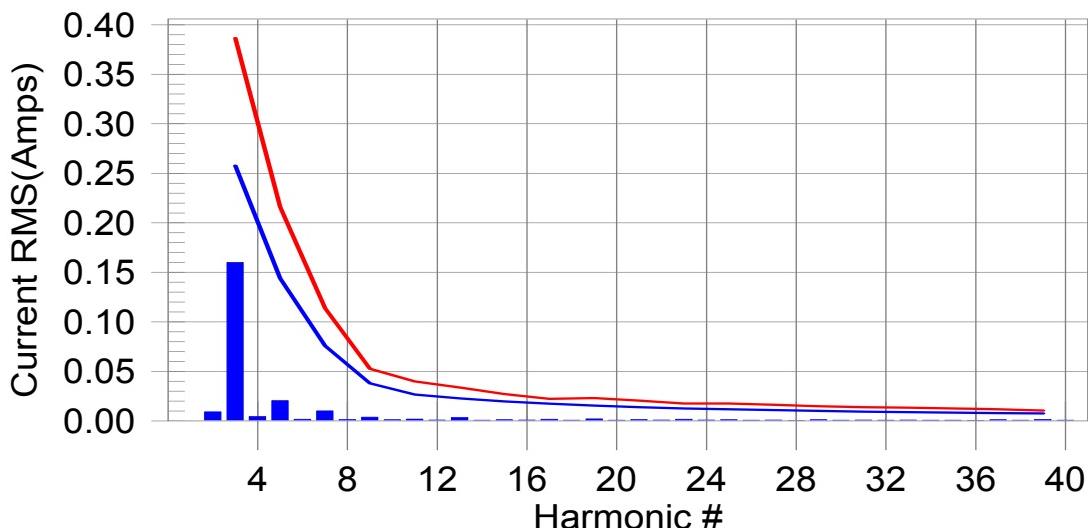
1.Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.

2:According to EN61000-3-2 paragraph 7 the note 1 and 2 are valid for all applications having an active input power >75W. Others the result should be pass.

Product	Notebook		
Test Item	Power Harmonics		
Test Mode	Mode 2		
Date of Test	2008/08/27	Test Site	No.3 Shielded Room

Test Result: Pass

Source qualification: Normal

Current & voltage waveformsHarmonics and Class D limit lineEuropean Limits

Test result: Pass

Worst harmonic was #3 with 41.05% of the limit.

Test Result: Pass

Source qualification: Normal

THC(A): 0.13

I-THD(%): 47.88

POHC(A): 0.002

POHC Limit(A): 0.033

Highest parameter values during test:

V\_RMS (Volts): 229.74

Frequency(Hz): 50.00

I\_Peak (Amps): 0.918

I\_RMS (Amps): 0.387

I\_Fund (Amps): 0.330

Crest Factor: 3.126

Power (Watts): 75.8

Power Factor: 0.853

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.009						
3	0.127	0.258	0.0	0.160	0.387	0.00	Pass
4	0.004						
5	0.015	0.144	0.0	0.021	0.216	0.00	Pass
6	0.002						
7	0.008	0.076	0.0	0.010	0.114	0.00	Pass
8	0.001						
9	0.003	0.038	0.0	0.004	0.053	0.00	Pass
10	0.001						
11	0.001	0.027	0.0	0.002	0.040	0.00	Pass
12	0.001						
13	0.002	0.023	0.0	0.004	0.034	0.00	Pass
14	0.001						
15	0.001	0.020	0.0	0.001	0.027	0.00	Pass
16	0.001						
17	0.001	0.017	0.0	0.002	0.022	0.00	Pass
18	0.001						
19	0.001	0.015	0.0	0.002	0.023	0.00	Pass
20	0.001						
21	0.001	0.014	0.0	0.001	0.021	0.00	Pass
22	0.001						
23	0.001	0.013	0.0	0.002	0.018	0.00	Pass
24	0.001						
25	0.001	0.012	0.0	0.001	0.018	6.68	Pass
26	0.001						
27	0.001	0.011	0.0	0.001	0.016	0.00	Pass
28	0.001						
29	0.001	0.010	0.0	0.001	0.015	0.00	Pass
30	0.001						
31	0.001	0.009	0.0	0.001	0.014	0.00	Pass
32	0.001						
33	0.001	0.009	0.0	0.001	0.013	6.57	Pass
34	0.001						
35	0.001	0.008	0.0	0.001	0.013	0.00	Pass
36	0.001						
37	0.001	0.008	0.0	0.001	0.012	0.00	Pass
38	0.001						
39	0.001	0.008	0.0	0.002	0.010	0.00	Pass
40	0.001						

1.Dynamic limits were applied for this test. The highest harmonics values in the above table may not occur at the same window as the maximum harmonics/limit ratio.

2:According to EN61000-3-2 paragraph 7 the note 1 and 2 are valid for all applications having an active input power >75W. Others the result should be pass.

## 6.7. Test Photograph

Test Mode : Mode 1

Description : Power Harmonics Test Setup



Test Mode : Mode 2

Description : Power Harmonics Test Setup

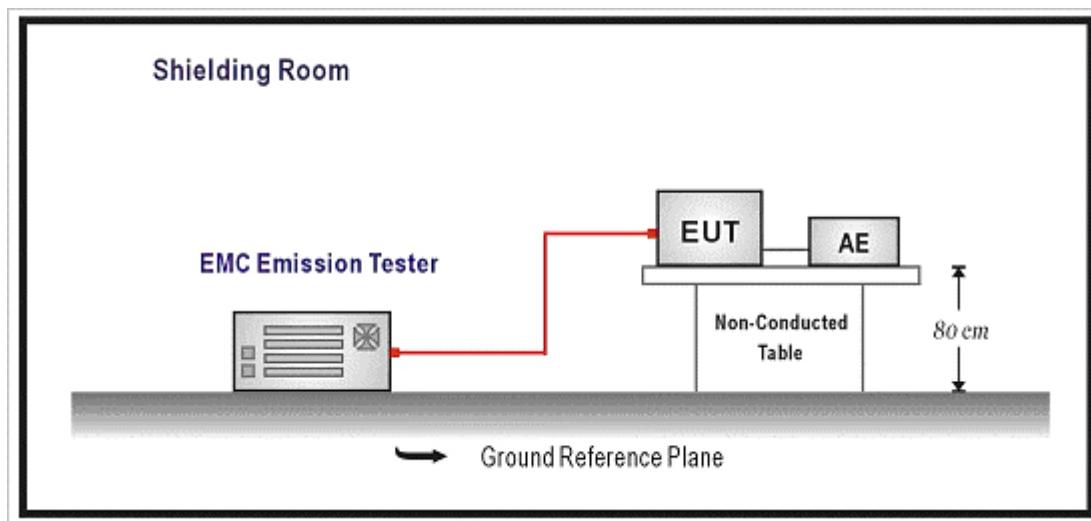


## 7. Voltage Fluctuation and Flicker

### 7.1. Test Specification

According to EMC Standard : EN 61000-3-3

### 7.2. Test Setup



### 7.3. Limit

The following limits apply:

- the value of  $P_{st}$  shall not be greater than 1.0;
- the value of  $P_{1t}$  shall not be greater than 0.65;
- the value of  $d(t)$  during a voltage change shall not exceed 3.3 % for more than 500 ms;
- the relative steady-state voltage change,  $d_c$ , shall not exceed 3.3 %;
- the maximum relative voltage change,  $d_{max}$ , shall not exceed:
  - a) 4 % without additional conditions;
  - b) 6 % for equipment which is:
    - switched manually, or
    - switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

NOTE The cycling frequency will be further limited by the  $P_{st}$  and  $P_{1t}$  limit.

For example: a  $d_{max}$  of 6% producing a rectangular voltage change characteristic twice per hour will give a  $P_{1t}$  of about 0.65.

- c) 7 % for equipment which is:
- attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
  - switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

$P_{st}$  and  $P_{1t}$  requirements shall not be applied to voltage changes caused by manual switching.

#### **7.4. Test Procedure**

The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

#### **7.5. Deviation from Test Standard**

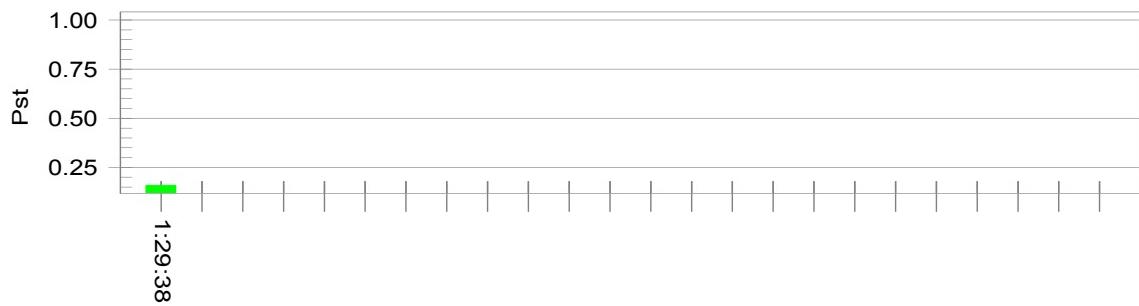
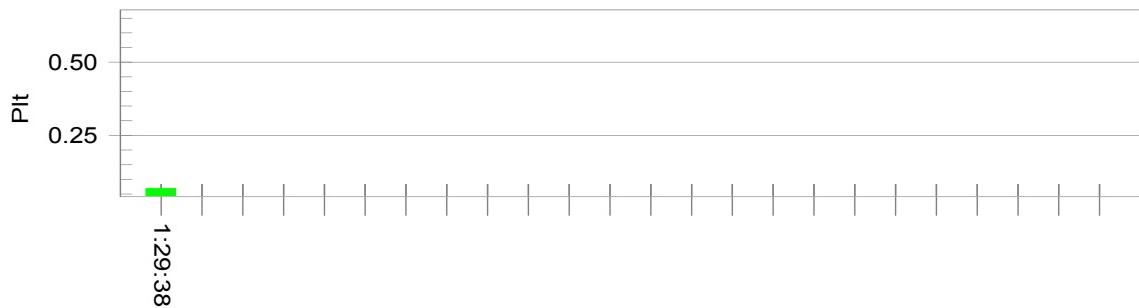
No deviation.

**7.6. Test Result**

Product	Notebook		
Test Item	Voltage Fluctuation and Flicker		
Test Mode	Mode 1		
Date of Test	2008/08/27	Test Site	No.3 Shielded Room

Test Result: Pass

Status: Test Completed

Pst and limit lineEuropean LimitsPlt and limit line

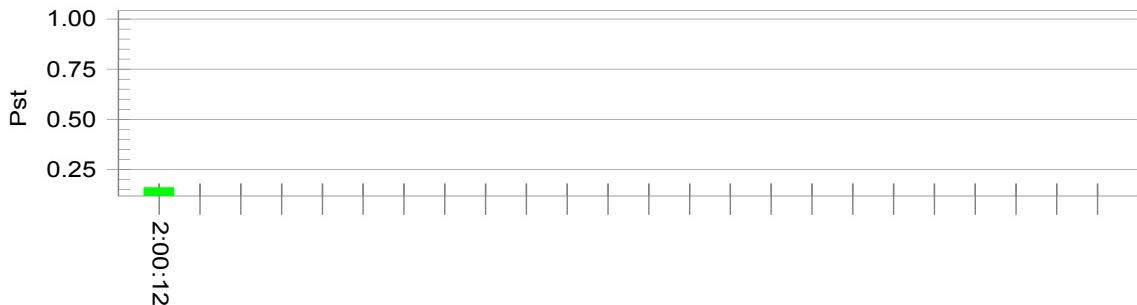
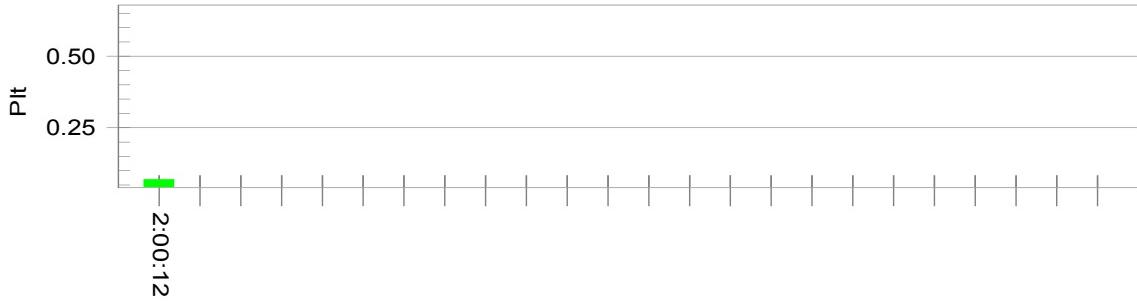
Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.63	Test limit (%):	3.30	Pass
Highest dt (%):	0.00	Test limit (mS):	500.0	Pass
Time(mS) > dt:	0.0	Test limit (%):	3.30	Pass
Highest dc (%):	0.00	Test limit (%):	4.00	Pass
Highest dmax (%):	0.00	Test limit:	1.000	Pass
Highest Pst (10 min. period):	0.160	Test limit:	0.650	Pass
Highest Plt (2 hr. period):	0.070			

Product	Notebook		
Test Item	Voltage Fluctuation and Flicker		
Test Mode	Mode 2		
Date of Test	2008/08/27	Test Site	No.3 Shielded Room

Test Result: Pass

Status: Test Completed

Pst and limit lineEuropean LimitsPlt and limit line

Parameter values recorded during the test:

Vrms at the end of test (Volt): 229.69

Highest dt (%):	0.00	Test limit (%):	3.30	Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.160	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.070	Test limit:	0.650	Pass

## 7.7. Test Photograph

Test Mode : Mode 1

Description : Flicker Test Setup



Test Mode : Mode 2

Description : Flicker Test Setup

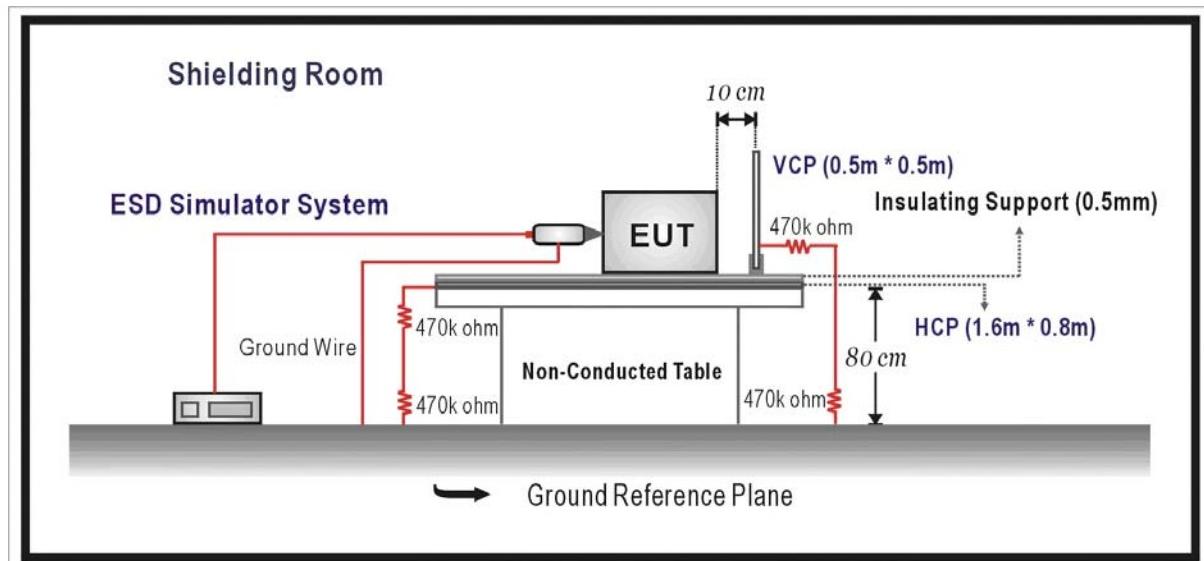


## 8. Electrostatic Discharge

### 8.1. Test Specification

According to Standard : IEC 61000-4-2

### 8.2. Test Setup



### 8.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Electrostatic Discharge	kV(Charge Voltage)	±8 Air Discharge ±4 Contact Discharge	B

#### **8.4. Test Procedure**

Direct application of discharges to the EUT:

Contact discharge was applied only to conductive surfaces of the EUT.

Air discharges were applied only to non-conductive surfaces of the EUT.

During the test, it was performed with single discharges. For the single discharge time between successive single discharges will be kept longer 1 second. It was at least ten single discharges with positive and negative at the same selected point.

The selected point, which was performed with electrostatic discharge, was marked on the red label of the EUT.

Indirect application of discharges to the EUT:

Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

#### **8.5. Deviation from Test Standard**

No deviation.

**8.6. Test Result**

Product	Notebook		
Test Item	Electrostatic Discharge		
Test Mode	Mode 1		
Date of Test	2008/08/27	Test Site	No.3 Shielded Room

Item	Amount of Discharge	Voltage	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8kV	B	B	Pass
	10	-8kV	B	B	Pass
Contact Discharge	25	+4kV	B	B	Pass
	25	-4kV	B	B	Pass
Indirect Discharge (HCP)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Front)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Left)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Back)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Right)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

NR: No Requirement

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_ kV.
  - No false alarms or other malfunctions were observed during or after the test.

Remark:

The Contact discharges were applied at least total 200 discharges at a minimum of four test points.

Product	Notebook			
Test Item	Electrostatic Discharge			
Test Mode	Mode 2			
Date of Test	2008/08/27	Test Site		No.3 Shielded Room

Item	Amount of Discharge	Voltage	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8kV	B	B	Pass
	10	-8kV	B	B	Pass
Contact Discharge	25	+4kV	B	B	Pass
	25	-4kV	B	B	Pass
Indirect Discharge (HCP)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Front)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Left)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Back)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass
Indirect Discharge (VCP Right)	50	+4kV	B	A	Pass
	50	-4kV	B	A	Pass

**Note:**

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

NR: No Requirement

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_ kV.
  - No false alarms or other malfunctions were observed during or after the test.

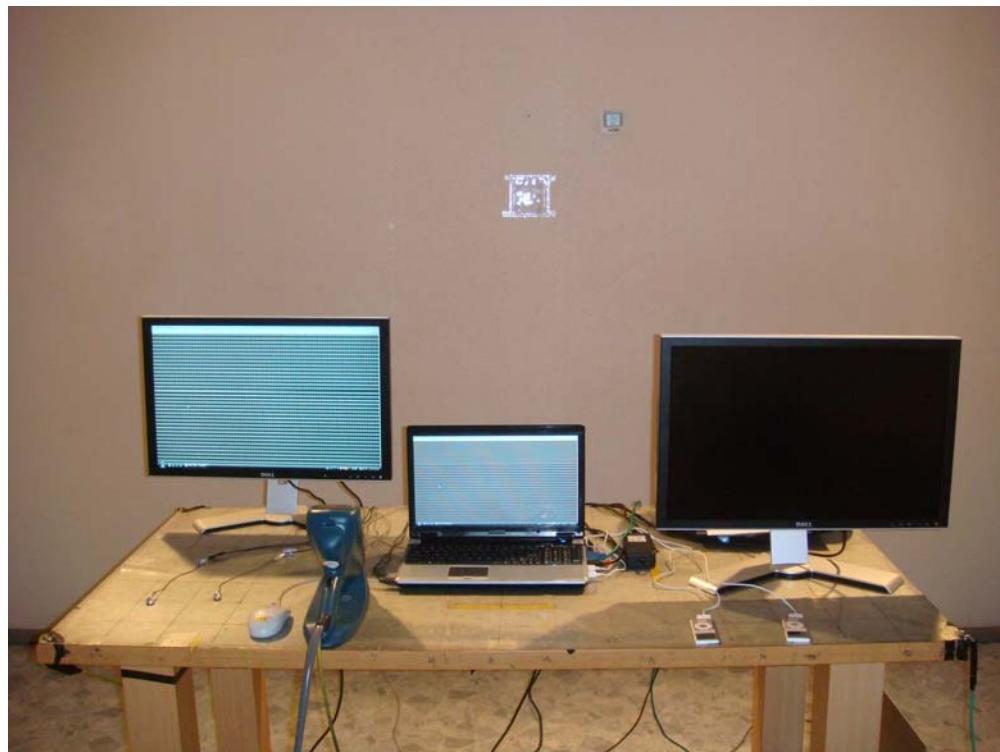
**Remark:**

The Contact discharges were applied at least total 200 discharges at a minimum of four test points.

### 8.7. Test Photograph

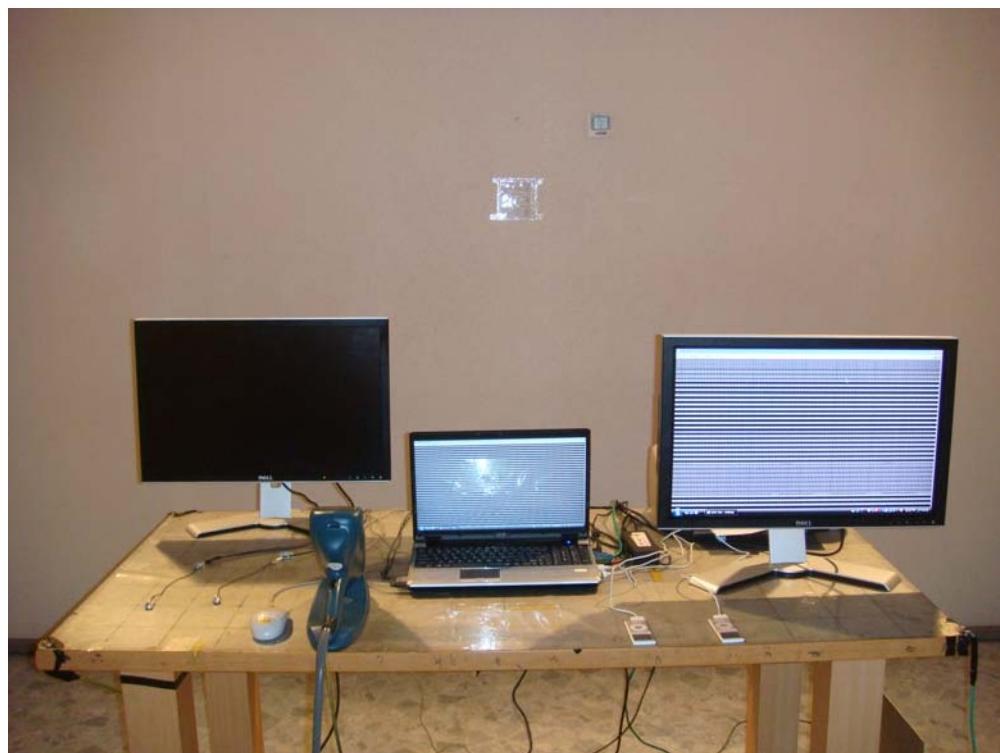
Test Mode : Mode 1

Description : ESD Test Setup



Test Mode : Mode 2

Description : ESD Test Setup

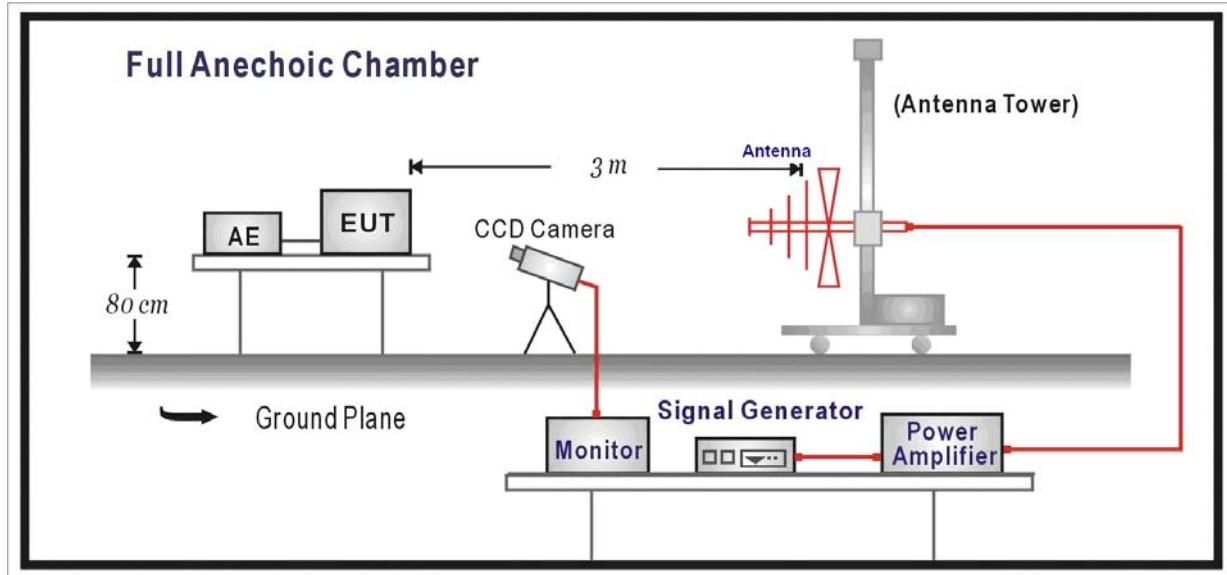


## 9. Radiated Susceptibility

### 9.1. Test Specification

According to Standard : IEC 61000-4-3

### 9.2. Test Setup



### 9.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Radio-Frequency Electromagnetic Field Amplitude Modulated	MHz V/m(Un-modulated, rms) % AM (1kHz)	80-1000 3 80	A

#### 9.4. Test Procedure

The EUT and load, which are placed on a table that is 0.8 meter above ground, are placed with one coincident with the calibration plane such that the distance from antenna to the EUT was 3 meters.

Both horizontal and vertical polarization of the antenna and four sides of the EUT are set on measurement.

In order to judge the EUT performance, a CCD camera is used to monitor EUT screen.

All the scanning conditions are as follows:

Condition of Test	Remarks
1. Field Strength	3 V/m Level 2
2. Radiated Signal	AM 80% Modulated with 1kHz
3. Scanning Frequency	80MHz - 1000MHz
4. Dwell Time	3 Seconds
5. Frequency step size $\Delta f$ :	1%
6. The rate of Swept of Frequency	$1.5 \times 10^{-3}$ decades/s

#### 9.5. Deviation from Test Standard

No deviation.

**9.6. Test Result**

Product	Notebook		
Test Item	Radiated susceptibility		
Test Mode	Mode 1		
Date of Test	2008/08/27	Test Site	Chamber5

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	FRONT	H	3	A	A	PASS
80-1000	FRONT	V	3	A	A	PASS
80-1000	BACK	H	3	A	A	PASS
80-1000	BACK	V	3	A	A	PASS
80-1000	RIGHT	H	3	A	A	PASS
80-1000	RIGHT	V	3	A	A	PASS
80-1000	LEFT	H	3	A	A	PASS
80-1000	LEFT	V	3	A	A	PASS
80-1000	UP	H	3	A	A	PASS
80-1000	UP	V	3	A	A	PASS
80-1000	DOWN	H	3	A	A	PASS
80-1000	DOWN	V	3	A	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - There was no observable degradation in performance.
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ V/m at frequency \_\_\_\_\_ MHz.
- No false alarms or other malfunctions were observed during or after the test.

Product	Notebook		
Test Item	Radiated susceptibility		
Test Mode	Mode 2		
Date of Test	2008/08/27	Test Site	Chamber5

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	FRONT	H	3	A	A	PASS
80-1000	FRONT	V	3	A	A	PASS
80-1000	BACK	H	3	A	A	PASS
80-1000	BACK	V	3	A	A	PASS
80-1000	RIGHT	H	3	A	A	PASS
80-1000	RIGHT	V	3	A	A	PASS
80-1000	LEFT	H	3	A	A	PASS
80-1000	LEFT	V	3	A	A	PASS
80-1000	UP	H	3	A	A	PASS
80-1000	UP	V	3	A	A	PASS
80-1000	DOWN	H	3	A	A	PASS
80-1000	DOWN	V	3	A	A	PASS

## Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - There was no observable degradation in performance.
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ V/m at frequency \_\_\_\_\_ MHz.
- No false alarms or other malfunctions were observed during or after the test.

## 9.7. Test Photograph

Test Mode : Mode 1

Description : Radiated Susceptibility Test Setup



Test Mode : Mode 2

Description : Radiated Susceptibility Test Setup

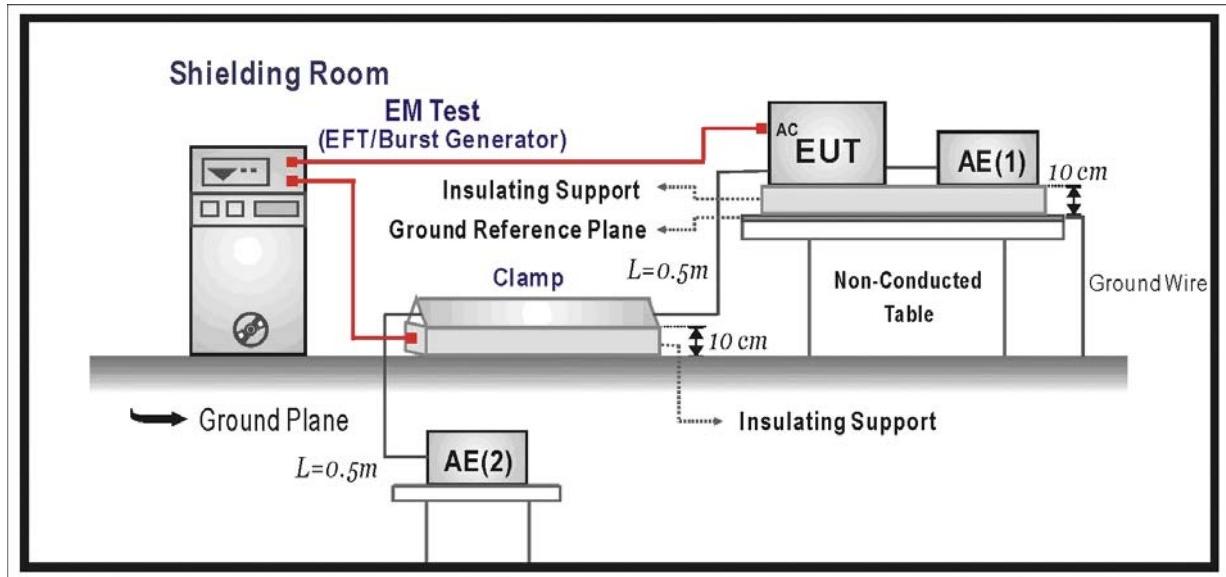


## 10. Electrical Fast Transient/Burst

### 10.1. Test Specification

According to Standard : IEC 61000-4-4

### 10.2. Test Setup



### 10.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
<b>I/O and communication ports</b>				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	$\pm 0.5$ 5/50 5	B
<b>Input DC Power Ports</b>				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	$\pm 0.5$ 5/50 5	B
<b>Input AC Power Ports</b>				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	$\pm 1$ 5/50 5	B

#### **10.4. Test Procedure**

The EUT is placed on a table that is 0.8 meter height. A ground reference plane is placed on the table, and uses a 0.1m insulation between the EUT and ground reference plane.

The minimum area of the ground reference plane is 1m\*1m, and 0.65mm thick min, and projected beyond the EUT by at least 0.1m on all sides.

Test on I/O and communication ports:

The EFT interference signal is through a coupling clamp device couples to the signal and control lines of the EUT with burst noise for 1minute.

Test on power supply ports:

The EUT is connected to the power mains through a coupling device that directly couples the EFT/B interference signal.

Each of the Line and Neutral conductors is impressed with burst noise for 1 minute.

The length of the signal and power lines between the coupling device and the EUT is 0.5m.

#### **10.5. Deviation from Test Standard**

No deviation.

**10.6. Test Result**

Product	Notebook		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 1		
Date of Test	2008/08/27	Test Site	No.6 Shielded Room

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N-PE	±	1kV	60	Direct	B	B	PASS
LAN	±	0.5kV	60	Clamp	B	A	PASS
Telecom	±	0.5kV	60	Clamp	B	B	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A : Operate as intended during and after the test
- Meet criteria B : Operate as intended after the test
- Meet criteria C : Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test.

Product	Notebook		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 2		
Date of Test	2008/08/27	Test Site	No.6 Shielded Room

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N-PE	±	1kV	60	Direct	B	B	PASS
LAN	±	0.5kV	60	Clamp	B	A	PASS
Telecom	±	0.5kV	60	Clamp	B	B	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A : Operate as intended during and after the test
- Meet criteria B : Operate as intended after the test
- Meet criteria C : Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test.

### 10.7. Test Photograph

Test Mode : Mode 1

Description : EFT/B Test Setup



Test Mode : Mode 1

Description : EFT/B Test Setup-Clamp



Test Mode : Mode 2

Description : EFT/B Test Setup



Test Mode : Mode 2

Description : EFT/B Test Setup-Clamp

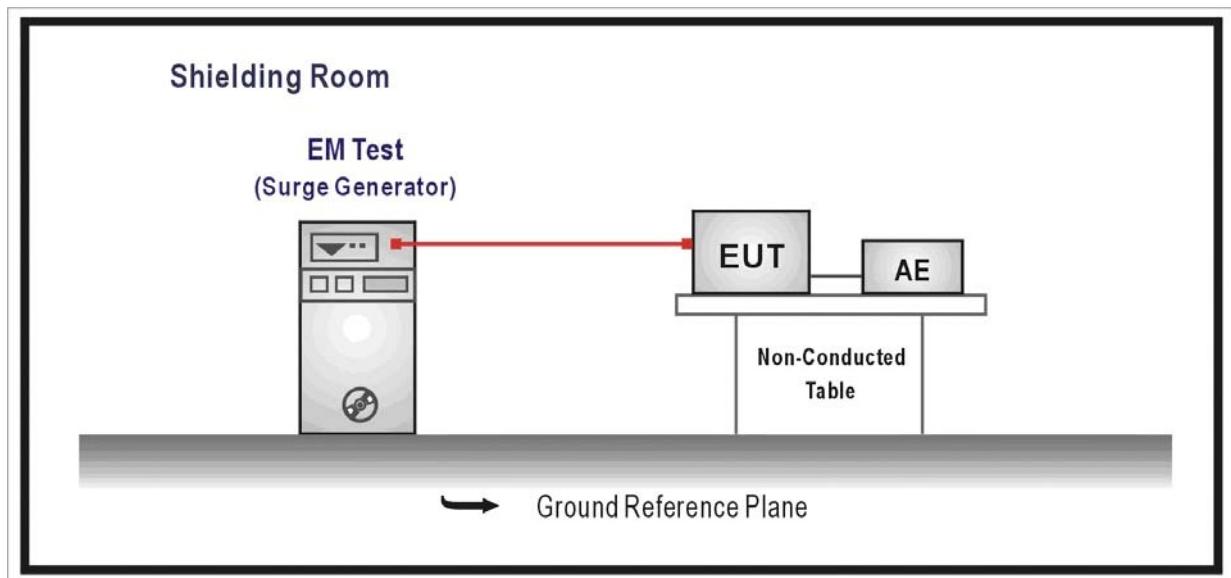


## 11. Surge

### 11.1. Test Specification

According to Standard : IEC 61000-4-5

### 11.2. Test Setup



### 11.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
<b>Signal Ports and Telecommunication Ports(See 1) and 2) )</b>				
	Surges Line to Ground	Tr/Th us kV	1.2/50 (8/20) $\pm 1$	B
<b>Input DC Power Ports</b>				
	Surges Line to Ground	Tr/Th us kV	1.2/50 (8/20) $\pm 0.5$	B
<b>AC Input and AC Output Power Ports</b>				
	Surges Line to Line Line to Ground	Tr/Th us kV kV	1.2/50 (8/20) $\pm 1$ $\pm 2$	B

Notes:

- 1) Applicable only to ports which according to the manufacturer's may directly to outdoor cables.
- 2) Where normal functioning cannot be achieved because of the impact of the CDN on the EUT, no immunity test shall be required.

#### **11.4. Test Procedure**

The EUT and its load are placed on a table that is 0.8 meter above a metal ground plane measured 1m\*1m min. and 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The length of power cord between the coupling device and the EUT shall be 2m or less.

For Input and Output AC Power or DC Input and DC Output Power Ports:

The EUT is connected to the power mains through a coupling device that directly couples the Surge interference signal.

The surge noise shall be applied synchronized to the voltage phase at 0<sup>0</sup>, 90<sup>0</sup>, 180<sup>0</sup>, 270<sup>0</sup> and the peak value of the a.c. voltage wave. (Positive and negative)

Each of Line-Earth and Line-Line is impressed with a sequence of five surge voltages with interval of 1 min.

#### **11.5. Deviation from Test Standard**

No deviation.

**11.6. Test Result**

Product	Notebook						
Test Item	Surge						
Test Mode	Mode 1						
Date of Test	2008/08/27	Test Site		No.6 Shielded Room			

Inject Line	Polarity	Angle	Voltage kV	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	0	1kV	60	Direct	B	A	PASS
L-N	±	90	1kV	60	Direct	B	A	PASS
L-N	±	180	1kV	60	Direct	B	A	PASS
L-N	±	270	1kV	60	Direct	B	A	PASS
L-PE	±	0	2kV	60	Direct	B	A	PASS
L-PE	±	90	2kV	60	Direct	B	A	PASS
L-PE	±	180	2kV	60	Direct	B	A	PASS
L-PE	±	270	2kV	60	Direct	B	A	PASS
N-PE	±	0	2kV	60	Direct	B	A	PASS
N-PE	±	90	2kV	60	Direct	B	A	PASS
N-PE	±	180	2kV	60	Direct	B	A	PASS
N-PE	±	270	2kV	60	Direct	B	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A : Operate as intended during and after the test
- Meet criteria B : Operate as intended after the test
- Meet criteria C : Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test.

Product	Notebook						
Test Item	Surge						
Test Mode	Mode 2						
Date of Test	2008/08/27			Test Site	No.6 Shielded Room		

Inject Line	Polarity	Angle	Voltage kV	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	0	1kV	60	Direct	B	A	PASS
L-N	±	90	1kV	60	Direct	B	A	PASS
L-N	±	180	1kV	60	Direct	B	A	PASS
L-N	±	270	1kV	60	Direct	B	A	PASS
L-PE	±	0	2kV	60	Direct	B	A	PASS
L-PE	±	90	2kV	60	Direct	B	A	PASS
L-PE	±	180	2kV	60	Direct	B	A	PASS
L-PE	±	270	2kV	60	Direct	B	A	PASS
N-PE	±	0	2kV	60	Direct	B	A	PASS
N-PE	±	90	2kV	60	Direct	B	A	PASS
N-PE	±	180	2kV	60	Direct	B	A	PASS
N-PE	±	270	2kV	60	Direct	B	A	PASS

**Note:**

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A : Operate as intended during and after the test
- Meet criteria B : Operate as intended after the test
- Meet criteria C : Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test.

### 11.7. Test Photograph

Test Mode : Mode 1

Description : SURGE Test Setup



Test Mode : Mode 2

Description : SURGE Test Setup



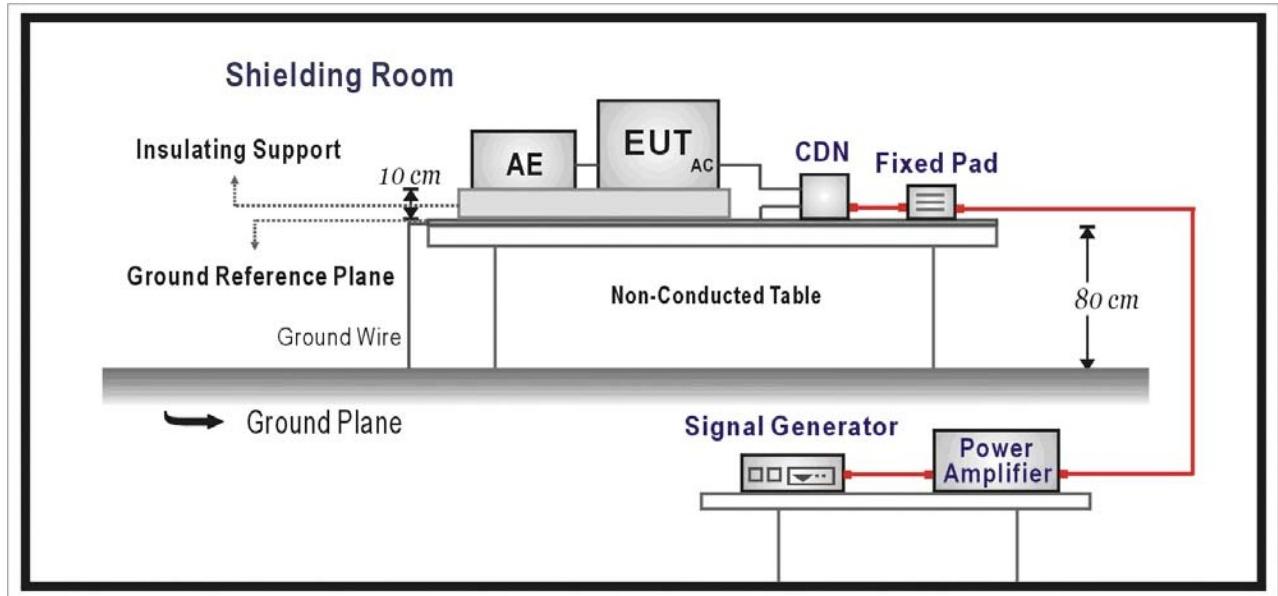
## 12. Conducted Susceptibility

### 12.1. Test Specification

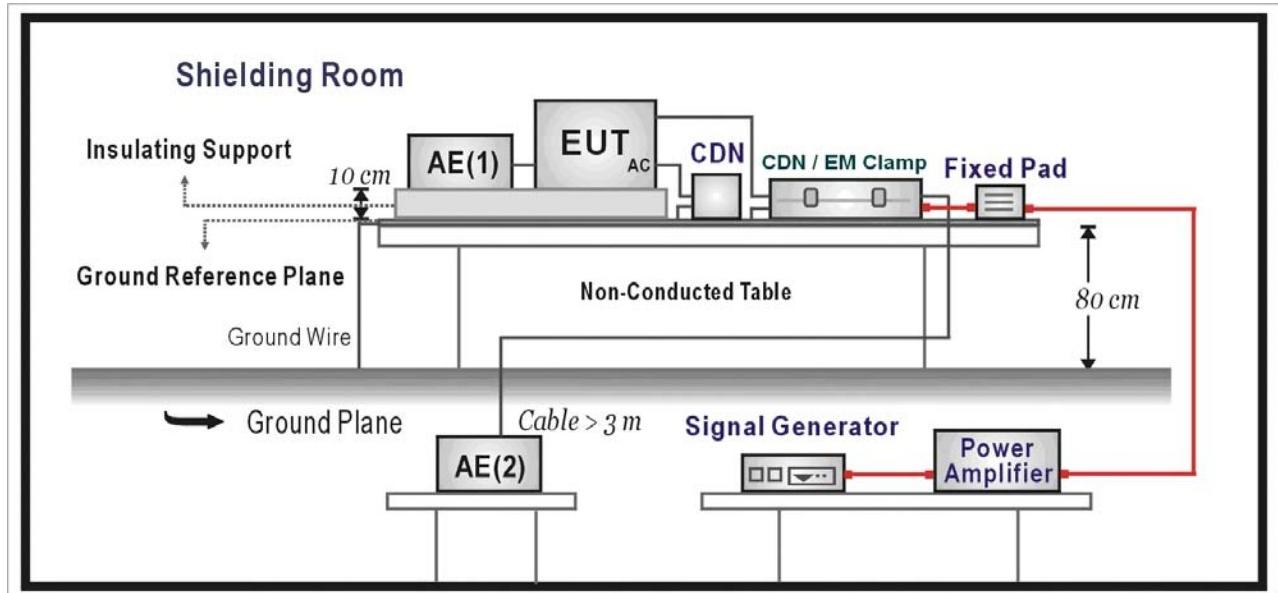
According to Standard : IEC 61000-4-6

### 12.2. Test Setup

#### CDN Test Mode



#### EM Clamp Test Mode



### 12.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
<b>Signal Ports and Telecommunication Ports</b>				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A
<b>Input DC Power Ports</b>				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A
<b>Input AC Power Ports</b>				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A

### 12.4. Test Procedure

The EUT are placed on a table that is 0.8 meter height, and a Ground reference plane on the table, EUT are placed upon table and use a 10cm insulation between the EUT and Ground reference plane.

For Signal Ports and Telecommunication Ports

The disturbance signal is through a coupling and decoupling networks (CDN) or EM-clamp device couples to the signal and Telecommunication lines of the EUT.

For Input DC and AC Power Ports

The EUT is connected to the power mains through a coupling and decoupling networks for power supply lines. And directly couples the disturbances signal into EUT.

Used CDN-M2 for two wires or CDN-M3 for three wires.

All the scanning conditions are as follows:

Condition of Test	Remarks
1. Field Strength	130dBuV(3V) Level 2
2. Radiated Signal	AM 80% Modulated with 1kHz
3. Scanning Frequency	0.15MHz – 80MHz
4. Dwell Time	3 Seconds
5. Frequency step size $\Delta f$ :	1%
6. The rate of Swept of Frequency	$1.5 \times 10^{-3}$ decades/s

### 12.5. Deviation from Test Standard

No deviation.

**12.6. Test Result**

Product	Notebook		
Test Item	Conducted susceptibility		
Test Mode	Mode 1		
Date of Test	2008/08/27	Test Site	No.6 Shielded Room

Frequency Range (MHz)	Voltage Applied dBuV(V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	130 (3V)	CDN	AC IN	A	A	PASS
0.15~80	130 (3V)	CDN	LAN	A	A	PASS
0.15~80	130 (3V)	CDN	GIGA	A	A	PASS
0.15~80	130 (3V)	CDN	Telecom	A	A	PASS

Note:

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A : Operate as intended during and after the test
- Meet criteria B : Operate as intended after the test
- Meet criteria C : Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ dBuV(V) at frequency \_\_\_\_\_ MHz.
- No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	Notebook		
Test Item	Conducted susceptibility		
Test Mode	Mode 2		
Date of Test	2008/08/27	Test Site	No.6 Shielded Room

Frequency Range (MHz)	Voltage Applied dBuV(V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	130 (3V)	CDN	AC IN	A	A	PASS
0.15~80	130 (3V)	CDN	LAN	A	A	PASS
0.15~80	130 (3V)	CDN	GIGA	A	A	PASS
0.15~80	130 (3V)	CDN	Telecom	A	A	PASS

**Note:**

The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

- Meet criteria A : Operate as intended during and after the test
- Meet criteria B : Operate as intended after the test
- Meet criteria C : Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ dBuV(V) at frequency \_\_\_\_\_ MHz.
- No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

**12.7. Test Photograph**

Test Mode : Mode 1

Description : Conducted Susceptibility Test Setup



Test Mode : Mode 1

Description : Conducted Susceptibility Test Setup –CDN



Test Mode : Mode 2

Description : Conducted Susceptibility Test Setup



Test Mode : Mode 2

Description : Conducted Susceptibility Test Setup –CDN

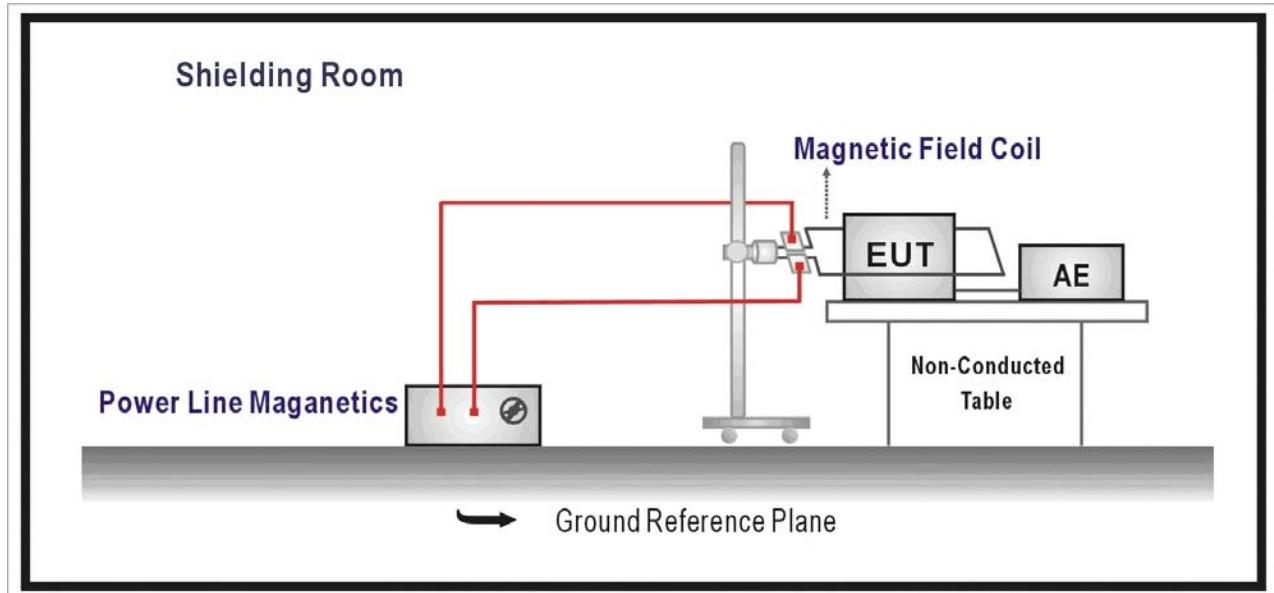


## 13. Power Frequency Magnetic Field

### 13.1. Test Specification

According to Standard : IEC 61000-4-8

### 13.2. Test Setup



### 13.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Power-Frequency Magnetic Field	Hz A/m (r.m.s.)	50 1	A

### 13.4. Test Procedure

The EUT and its load are placed on a table which is 0.8 meter above a metal ground plane measured at least 1m\*1m min. The test magnetic field shall be placed at central of the induction coil.

The test magnetic Field shall be applied 10 minutes by the immersion method to the EUT. And the induction coil shall be rotated by 90° in order to expose the EUT to the test field with different orientation (X, Y, Z Orientations).

### 13.5. Deviation from Test Standard

No deviation.

**13.6. Test Result**

Product	Notebook		
Test Item	Power frequency magnetic field		
Test Mode	Mode 1		
Date of Test	2008/08/26	Test Site	No.3 Shielded Room

Polarization	Frequency (Hz)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	1	A	A	PASS
Y Orientation	50	1	A	A	PASS
Z Orientation	50	1	A	A	PASS

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	Notebook		
Test Item	Power frequency magnetic field		
Test Mode	Mode 2		
Date of Test	2008/08/26	Test Site	No.3 Shielded Room

Polarization	Frequency (Hz)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	1	A	A	PASS
Y Orientation	50	1	A	A	PASS
Z Orientation	50	1	A	A	PASS

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

### 13.7. Test Photograph

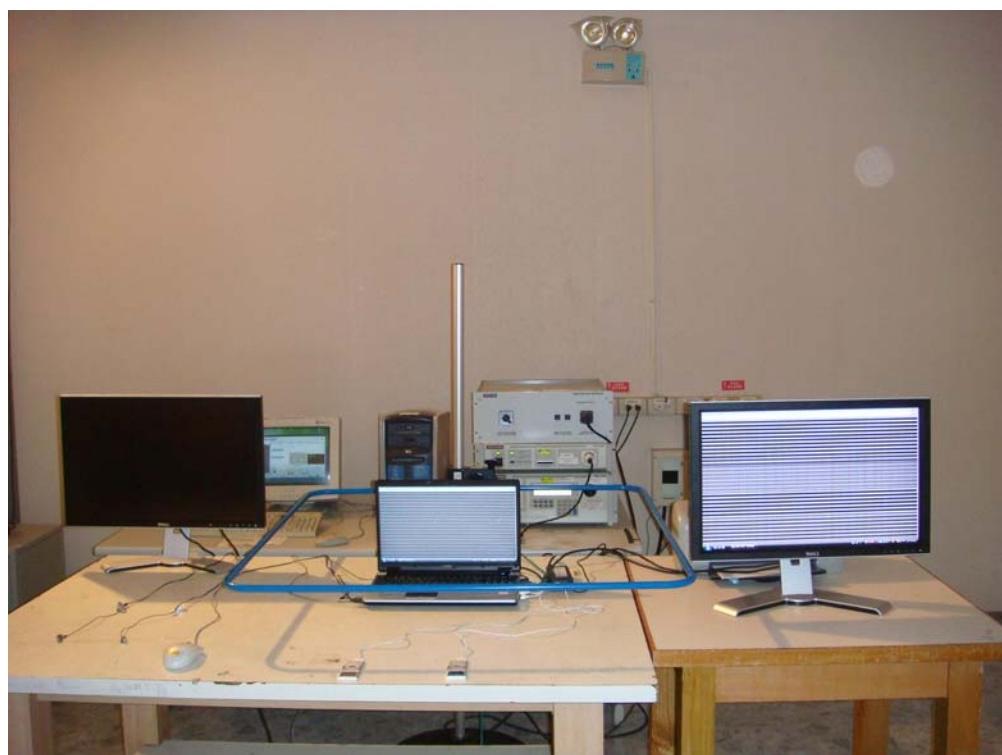
Test Mode : Mode 1

Description : Power Frequency Magnetic Field Test Setup



Test Mode : Mode 2

Description : Power Frequency Magnetic Field Test Setup

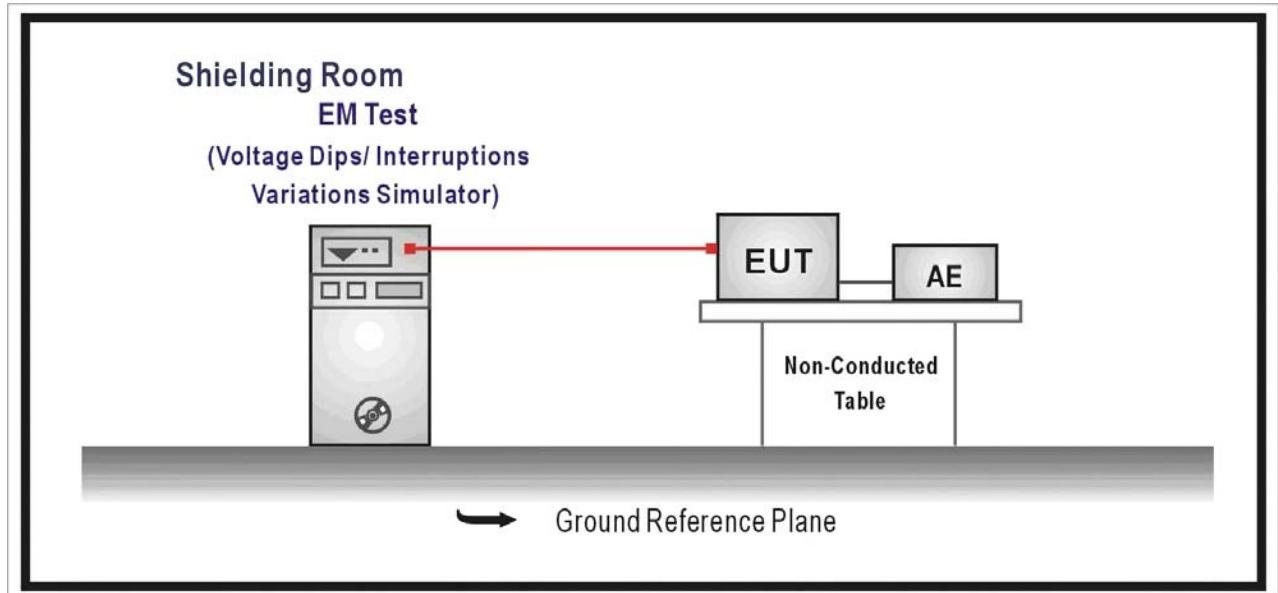


## 14. Voltage Dips and Interruption

### 14.1. Test Specification

According to Standard : IEC 61000-4-11

### 14.2. Test Setup



### 14.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Input AC Power Ports				
Voltage Dips	% Reduction Period	30 25		C
	% Reduction Period	>95 0.5		B
Voltage Interruptions	% Reduction Period	> 95 250		C

#### **14.4. Test Procedure**

The EUT and its load are placed on a table which is 0.8 meter above a metal ground plane measured 1m\*1m min. And 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The power cord shall be used the shortest power cord as specified by the manufacturer.

For Voltage Dips/ Interruptions test:

The selection of test voltage is based on the rated power range. If the operation range is large than 20% of lower power range, both end of specified voltage shall be tested.

Otherwise, the typical voltage specification is selected as test voltage.

The EUT is connected to the power mains through a coupling device that directly couples to the Voltage Dips and Interruption Generator.

The EUT shall be tested for 30% voltage dip of supplied voltage and duration 25 Periods, for 95% voltage dip of supplied voltage and duration 0.5 Periods with a sequence of three voltage dips with intervals of 10 seconds, and for 95% voltage interruption of supplied voltage and duration 250 Periods with a sequence of three voltage interruptions with intervals of 10 seconds.

Voltage phase shifting are shall occur at  $0^{\circ}$ ,  $45^{\circ}$ ,  $90^{\circ}$ ,  $135^{\circ}$ ,  $180^{\circ}$ ,  $225^{\circ}$ ,  $270^{\circ}$ ,  $315^{\circ}$  of the voltage.

#### **14.5. Deviation from Test Standard**

No deviation.

**14.6. Test Result**

Product	Notebook		
Test Item	Voltage dips and interruption		
Test Mode	Mode 1		
Date of Test	2008/08/27	Test Site	No.6 Shielded Room

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30(161V)	0	25	C	A	PASS
30(161V)	45	25	C	A	PASS
30(161V)	90	25	C	A	PASS
30(161V)	135	25	C	A	PASS
30(161V)	180	25	C	A	PASS
30(161V)	225	25	C	A	PASS
30(161V)	270	25	C	A	PASS
30(161V)	315	25	C	A	PASS
>95(0V)	0	0.5	B	A	PASS
>95(0V)	45	0.5	B	A	PASS
>95(0V)	90	0.5	B	A	PASS
>95(0V)	135	0.5	B	A	PASS
>95(0V)	180	0.5	B	A	PASS
>95(0V)	225	0.5	B	A	PASS
>95(0V)	270	0.5	B	A	PASS
>95(0V)	315	0.5	B	A	PASS
>95(0V)	0	250	C	B	PASS
>95(0V)	45	250	C	B	PASS
>95(0V)	90	250	C	B	PASS
>95(0V)	135	250	C	B	PASS
>95(0V)	180	250	C	B	PASS
>95(0V)	225	250	C	B	PASS
>95(0V)	270	250	C	B	PASS
>95(0V)	315	250	C	B	PASS

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - The nominal voltage of EUT is 230V.
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	Notebook		
Test Item	Voltage dips and interruption		
Test Mode	Mode 2		
Date of Test	2008/08/27	Test Site	No.6 Shielded Room

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30(161V)	0	25	C	A	PASS
30(161V)	45	25	C	A	PASS
30(161V)	90	25	C	A	PASS
30(161V)	135	25	C	A	PASS
30(161V)	180	25	C	A	PASS
30(161V)	225	25	C	A	PASS
30(161V)	270	25	C	A	PASS
30(161V)	315	25	C	A	PASS
>95(0V)	0	0.5	B	A	PASS
>95(0V)	45	0.5	B	A	PASS
>95(0V)	90	0.5	B	A	PASS
>95(0V)	135	0.5	B	A	PASS
>95(0V)	180	0.5	B	A	PASS
>95(0V)	225	0.5	B	A	PASS
>95(0V)	270	0.5	B	A	PASS
>95(0V)	315	0.5	B	A	PASS
>95(0V)	0	250	C	B	PASS
>95(0V)	45	250	C	B	PASS
>95(0V)	90	250	C	B	PASS
>95(0V)	135	250	C	B	PASS
>95(0V)	180	250	C	B	PASS
>95(0V)	225	250	C	B	PASS
>95(0V)	270	250	C	B	PASS
>95(0V)	315	250	C	B	PASS

- Meet criteria A: Operate as intended during and after the test
- Meet criteria B: Operate as intended after the test
- Meet criteria C: Loss/Error of function
- Additional Information
  - The nominal voltage of EUT is 230V.
  - EUT stopped operation and could / could not be reset by operator at \_\_\_\_\_ kV of Line \_\_\_\_\_.
- No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

#### 14.7. Test Photograph

Test Mode : Mode 1

Description : Voltage Dips Test Setup



Test Mode : Mode 2

Description : Voltage Dips Test Setup



**15. Attachment****➤ EUT Photograph**

(1) EUT Photo



(2) EUT Photo



(3) EUT Photo



(4) EUT Photo



(5) EUT Photo



(6) EUT Photo



(7) EUT Photo



(8) EUT Photo



(9) EUT Photo



(10) EUT Photo



(11) EUT Photo



(12) EUT Photo

